

LOGIC;
OR, THE
ART
OF
THINKING:
IN WHICH

Besides the *Common*, are contain'd many
Excellent *New Rules*, very profitable for directing
of *Reason*, and acquiring of *Judgment*, in things as
well relating to the Instruction of a *Mans self*, as
of *others*.

In Four Parts.

- I. Consisting of *Reflections* upon *Ideas*, or upon the
first Operation of the *Mind*, which is called *Appre-*
hension, &c.
- II. Of *Considerations* of *Men* about *Proper Judgments*, &c.
- III. Of the *Nature* and various *kinds* of *Reasoning*, &c.
- IV. Treats of the most *profitable Method* for *De-*
monstrating or *Illustrating* any *Truth*, &c.

TO WHICH

Is added an *INDEX* to the whole *BOOK*.

For the Excellency of the Matter, Printed many times in *French*
and *Latin*, and now for Publick Good Translated into *En-*
glish by Several Hands.

The Second Edition Corrected and Amended.

L O N D O N,

Printed by T. B. and are to be sold by *Randal Taylor*,
near *Stationers-Hall*, MDCXCIII.

THE
LAW
OF
THE
STATE

OF THE
COMMONS
AND
SENATE

IN
THE
YEAR
OF
OUR
LORD
1800

BY
THE
AUTHORITY
OF
THE
PARLIAMENT

PRINTED
BY
J. JOHNSON

ST. PAULS CHURCH-YARD

IN
THE
YEAR
OF
OUR
LORD
1800

A N

Advertisement OF THE AUTHOR.

THIS Small Treatise is altogether more behold-
ing for its Birth to Fortune, or rather an
Accident of Divertisement, then to any se-
rious Design. For it happen'd, That a Per-
son of Quality, entertaining a Young Nobleman, who
made appear a Solidity of Judgment, and a Penetration
of Wit much above his Years; among other Discourse told
him, that when he himself was a Young Man, he had mee-
t with a Person, from whom in Fifteen Days time he had
learnt the greatest and most material Part of Logic.
This Discourse gave occasion to another Person then present,
and one who was no great Admirer of that Science, to
answer with a Smile of Contempt, That if Monsieur—
would give himself the trouble, he would undertake to
teach him all that was of any use, in the so much cry'd up
Art of Logic, in four or five Days. Which Proposal
made in the Air, having for some time serv'd us for Pa-
stime, I resolv'd to make an Essay: And because I did
not think the vulgar Logics, either Compendiously or
Politely written, I design'd an Abridgment for the par-
ticular use of the Young Gentleman himself.

This was the only Aim I had when I first began the
Work; nor did I think to have spent above a day about it.

An Advertisement, &c.

But so soon as I had set my self to work, so many new Reflections crowded into my Thoughts, that I was constrain'd to write 'em down for the discharge of my Memory. So that instead of one day, I spent four or five; during which time, this Body of Logic was form'd, to which afterwards several other things were added.

Now tho it swell'd to a greater Bulk of Matter than was at first intended, yet had the Essay the same success which I at first expected. For the Young Nobleman having reduc'd the whole into four Tables, he learnt with ease, one a day, without any assistance of a Teacher. Tho true it is, we cannot expect that others should be so nimble as he who had a Wit altogether extraordinary and prompt to attain whatever depended upon the Understanding.

And this was the accidental occasion that produc'd this Treatise. But now whatever censure it may undergo in the World, I cannot be justly blam'd for committing it to the Press; since it was rather a forc'd then voluntary Act. For several Persons having obtain'd Copies of it in Writing (which cannot well be done without several Errors of the Pen) and understanding withal, That several Book-sellers were about to Print it, I thought it better to send it into the World corrected and entire, than to let it be Printed from defective Manuscripts. But then again, I thought my self oblig'd to make divers Additions, which swell'd it about a Third Part, believing the Limits of the First Essay too short for a Public View. And to that purpose we have made it the Subject of the following Discourse to explain the End, which we propose to our selves, and the reason why we have included so much variety of Matter.

THE

THE
TRANSLATORS
TO THE
READER.

THE Common Treatises of *Logic* are almost without number, and while every Author strives to add something of his own, sometimes little to the purpose, sometimes altogether from the matter, the Art is become, not only Obscure and Tedious, but in a great Measure Impertinent and Useless.

Thus the Schoolmen may be said to have clogg'd and fetter'd Reason, which ought to be free as Air, and plain as Demonstration it self, with vain misapplications of this Art to Notion and Nicety, while they make use of it only to maintain litigious Cavils and wrangling Disputes. So that indeed the common *Logics* are but as so many Counterscarps to shelter the obstinate and vain glorious, that disdain Submission and Convincement, and therefore retire within their Fortifications of difficult Terms, wrap themselves up in Quirk and Suttlety, and so escape from Reason in the Clouds and Mists of their own Raising.

For remedy of which we are beholden to this Fa-

The Translators to the Reader.

mous Author, who has at length recover'd this Art (then a noble Science when not Pedantic) from Night and Confusion ; clear'd away the Rubbish that oppress'd it, and Prun'd off those Underwoods and superfluous Boughs, that over shaded and Ecclipsed the light of true Reason ; so that now *Logic* may be said to appear like Truth it self, naked and delightful, as being freed from the *Pedantic Dust* of the Schools.

It has had this Influence upon the World already, that several Books have been already Written from the Rules of this *Logic*, not only by the Author himself, no less Celebrated for his Writings, then for many other worthy Actions that recommend him to the Commonwealth of Learning : Nor is his diligence in this particular, less to be applauded, for having cleans'd the *Augean Stables* of so many *Systems*, from studied *Barbarism* and *Delirium*. For which Reason this *Logic* was thrice Reprinted in *France*, so great was the satisfaction in those *Parts* ; and likewise Translated into *Latin* for Universal Benefit ; and now is rendered into *English*, as being a small Treatise, no less Useful for the Conduct of *Human Life*, than to instruct and guide us wandering in the *Labyrinths* of *Unsettled Reason*.

Let not the Reader slightly pass these Pages over, but seriously digest This *Art of Thinking*, and being digested, let him disperse the *Applications* into all the *Judgments*, which he makes of *Things*, and into all the *Actions* of his *Life*, if *Knowledge* and *Understanding* be his *Aim*.

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LOGIC

of
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of
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The First Discourse.

**THE
FIRST DISCOURSE;**

Shewing the

**DESIGN
OF THIS
New Logic.**

THERE is nothing more worthy of Esteem, than soundness of Judgment, and an exact measure of Wit to discern between truth and falsehood. All the other Faculties of the Mind are of singular use, but exactness of Reason is universally profitable upon all occasions, and in all the employments of Life. For it is not only in the Sciences that it is a difficult thing to discern Truth from Error, but also in all those Affairs and Actions both of the Body and Mind, which are the Subjects of Human Discourse. There is in every one a signal difference, while some are true and some are false; and therefore it belongs to Reason to make the choice. Who chuse aright,

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are they who are indu'd with an equal poise of Wit; such as make a wrong choice, are they whose Judgments are deprav'd; wherein consists the chiefest and most important Difference between the Faculties of the Understanding.

And therefore it ought to be the most principal Study of a Man to form and shape his Judgment, and to render it the most exact that possible may be; the main aim to which his utmost diligence ought to tend. To this end we must make use of Reason, as the Instrument to acquire Knowledge, and on the other side, we ought to make use of Knowledge to perfect Reason. Truth of Understanding being infinitely of greater value than all speculative Knowledge, by means of the most solid and certain Sciences: Which ought to be a caution to all Men of Prudence, not to engage farther in these Speculations, than while they serve to that end and only to make tryal of those Studies, not to employ therein the whole force of their Wit.

For if the diligence of Men do not tend to the end, they will not find the study of the speculative Sciences, such as Geometry, Astronomy and Physick, to be other than a vain Amusement, or that they be much more to be valued than the Ignorance of those things; which at least has this Advantage, that it is less troublesom, and does not puff Men up with that sottish Vanity, which they ascribe to themselves from the knowledge of those Fruitless and Barren Sciences.

The hidden Secrets and Mysteries of those Arts are not only of little profit, but altogether useless, if Men consider 'em only in themselves and for themselves. For Men were not born to employ their time in measuring Lines, in examining the proportion of Angles, or considering the different Motions of Substance. Their Souls are too lofty, their Life too short, their Time too precious, to busie themselves about such petty Objects. But they are obliged to be just, to be upright, to be judicious in all their Discourses, in all their Actions, and in all Affairs which they undertake.

Which Care and Industry is so much the more necessary, by how much this one rare Perfection, Exactness of Judgment, is to be admired above all others: For every where we meet with none but wandring Understandings, incapable of discerning Truth, who in all things take a wrong Course; who satisfy themselves with corrupted Reasons, and fain would impose the same upon others; who suffer themselves to be led away with the smallest Experiences; who are always in Excesses and Extremities; who want sufficient staidness to preserve themselves constant to the Truths which they know, as adhering thereto, rather by hazard than sound and judicious Choice; or else quite contrary, continue so obstinately fix'd in their Opinions, that they will not so much as listen to those that could undeceive them; who boldly decide and determine Arguments, which they neither know nor understand, and which were never yet understood by any other: Who

make no difference at all between Speaking and Speaking ; or only judge of the truth of Things by the Tone of the Voice : He that talks smoothly and gravely, speaks Reason ; he that cannot readily explain himself, and seems to be in a heat, must be in the wrong ; and more than this they know not.

Which is the reason that there are no absurdities how insupportable soever, which do not find their Champions. He that has a design to Deceive the World, shall not fail of Persons as ready to be gull'd, and the most ridiculous Fopperies shall meet with Understandings proportionate to their Folly. And indeed we ought not to wonder at any thing, while we find so many People infatuated with the Fooleries of judicial Astrology, and Persons of Gravity so seriously handling that Subject. There is a certain Constellation in the Firmament which some Men have been pleas'd to call a *Ballance* ; as like a Ballance as a Wind-Mill, and all one. This *Ballance*, they cry, is an Emblem of Justice, and all that are born under that Constellation shall be upright and just. There are three other Signs in the Zodiac, which they call, the one a *Ram*, the other a *Bull*, the third a *Goat* ; and which they might as well have called an *Elephant*, a *Crocodile*, or a *Rhinoceros*. Now the *Ram*, the *Bull*, and the *Goat* are Beasts that chew the Cud ; and therefore they that take Physick when the Moon is in any of these Constellations, shall be in danger to vomit it up again. These are strange Extravagancies ; yet as extrava-

gant as they are, there are persons that utter 'em abroad for sound ware, and others that as easily believe them.

This Fallhood of the Understanding is not only the Cause of those Errors that are intermix'd in the Sciences, but of the greatest part of those Faults and Crimes that are committed in Civil Life and Conversation, of unjust Quarrels, of ill grounded Law-suits, of rash Advice, and of Enterprizes ill contrived and worse managed. There are few of these Miscarriages that have not their source from some Error or Defect of Judgment. So that there is no Defect which it more concerns a Man to correct in himself than this.

But as this amendment is greatly to be desir'd and wish'd for, so is it equally as difficult to maintain, seeing it depends much upon that measure of Intelligence, which we bring into the World at our Birth. For common Sense no is such Vulgar Quality as Men take it to be. There are an infinite Company of dull and stupid Heads which are not to be reformed by Instruction, but by restraining them within those bounds which are proper for their Capacity, and hindring 'em from meddling with those things of which they are incapable. Nevertheless, 'tis very true, that the greatest part of the fallacious Judgments among Men proceed not from this Principle, as being rather caus'd by the precipitation of the Brain, and through defect of Consideration; from whence it comes to pass, that they judge rashly of what they only know obscurely and confusedly.

The little regard and love of Truth in Men, is the Reason that they take so little pains, the chiefest part of their time, to distinguish what is true from what is false. They admit into their Breasts all sorts of Discourses and Tenents, rather chusing to suppose them to be true, than to examine 'em. If they understand them not, they are willing to believe that others do. And thus they load their memories with an infinite number of Falsities, and afterwards argue upon those Principles, never considering what they say, or what they think.

Vanity and Presumption also contribute very much to this Miscarriage. They think it a shame to doubt, and not to know; and they rather chuse to talk, and determine at a venture, than to acknowledge their not being sufficiently inform'd to judge aright. Alas! we are full of Ignorance and Error; and yet it is the most difficult labour in the World to draw from the Lips of Men such a Confession as this, *I am at a stand, I am at a stand*; though so just and so conformable to their Natural Condition.

Others there are, on the other side, who not having wit enough to know that there are a thousand things full of obscurity and uncertainty; and yet out of another sort of Vanity, desirous to let the World see that they are not sway'd by popular Credulity, take a pride in maintaining that there is nothing at all certain. Thus they discharge themselves of the trouble of Examination, and misguided by this evil Principle, they question the
most

most constant Truths, even of Religion it self.

This is a Source of *Pyrronism*, which is another Extravagance of human Wit; which, though it appears quite contrary to the rashness of those that decide and determine all things, flows nevertheless from the same Spring, that is to say, want of Consideration. For as the one will not take the pains to find out Error, the other will not be at the trouble to face Truth with that steadfastness which is requisite for convincement. The least glimmering suffices to make the one believe notorious Falshoods; and to the other is a sufficient satisfaction to make 'em question the greatest certainties. But as well in the one as the other; it is only want of Industry that produces such different Effects.

True Reason places all things in their proper Station. She causes us to scruple all things that are doubtful, to reject what is false, and ingeniously to acknowledge what is clear and evident; without contenting our selves with vain Arguments of the *Pyrronians*, which do no way destroy the rational Assurance we have of things certain, nor in the very Judgments of those that propose 'em. No Man ever seriously doubted whether there were a World, Sun and a Moon, or whether the whole were bigger than its part? Men may outwardly say with their Lips that they doubt such a thing, but they can never affirm it in their hearts. Therefore *Pyrronism* cannot be call'd a Sect of People that are perswaded of what they aver, but a Sect of Lyars. So frequently do they contradict one

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another

another in discoursing of their Opinions, their Hearts not being able to accord with their Tongues, as we may find in *Montaigne*, who has endeavour'd to restore that Sect to this latter Age. For after he has affirm'd, that the *Academic's* differed from the *Pyrronians*, he declares himself for the *Pyrronians* in these words, *The Opinion of the Pyrronians, saith he, is more bold, and altogether much more probable*. Whence it appears, that there are some things more probable than others. Nor does he speak this to maintain a piece of Subtilty: They are words that escaped him before he was aware, and that proceeded from the bottom of Nature, which the Falshood of Opinion cannot stifle.

But the mischief is, that in things that are not so subject to Sense, these Persons that place their whole delight in doubting all things, will not permit their Wit to apply it self to what might confirm their Judgments; or if they do, 'tis very slightly; by which means they fall into a voluntary suspence and wavering in matters of Religion, as being pleas'd with that state of Darknes which they procure to themselves, and more convenient to allay the stings and reproaches of their Conscience, and give the free Reins to their passions.

Seeing then, that these Irregularities of the Understanding, which appear so opposite, while the one gives easie belief to what is obscure and uncertain, the other still questions what is clear and evident, have yet the same Source; that is to say, want of attentive Study to discern the Truth; the Remedy

is visible, since there is but one way to guard our selves from those Miscarriages, by rectifying our Judgments and our Thoughts, with mature and studious Deliberation. Which is the only thing absolutely necessary to defend a Man from Surprises. For as to what the *Academics* affirm'd, that it is impossible to find out the Truth, unless we had the marks of it, as it would be impossible to know a Runagate Slave, if met by chance, unless his peculiar marks were known, it is a meer frivolous piece of subtilty. For as we need no other marks to distinguish Light from Darkness but the Light it self, so neither do we need any other marks to distinguish Truth, than the brightness of the Evidence which surrounds it, and subdues and convinces the Understanding, maugre all opposition. So that all the Arguments of these Philosophers are not able to prevent the Soul from surrendring her self to Truth, when fully penetrated by its piercing Rays, than they are able to hinder the Eyes from seeing, when open, and that they are pierced by the light of the Sun.

But because the Understanding suffers it self to be sometimes abused by false Appearances, for want of necessary consideration, and because it has not attain'd to a Knowledge of things by long and difficult Examination, most certainly it would be of great Advantage to find out Rules for the improvement of the Search of Truth, that so it might become more easie and more surely effectual; nor is it impossible but that such Rules might be found

out. For since that Men are frequently deceived in their Judgments, and sometimes again as rightly understand when they argue one while ill, another while well; and after they have argued ill, are capable to see their Error; 'tis but observing by reflecting upon their own thoughts, what method they follow'd when they argued well, and what was the cause of their mistake, when they happen'd to be deceived; and, by vertue of those reflections, to frame Rules to themselves, whereby to avoid being surprized for the future.

This is properly that which the Philosophers undertake, and which they make such magnificent promises to perform; and therefore if we may believe 'em, they furnish us in that sort of Learning which they design to this purpose, calling it by the name of *Logic*, with a Light sufficient to dissipate all those Clouds that darken our Understanding. They correct all the Errors of our Thoughts, and give us such infallible Rules that we cannot miss the Truth, and so necessary withal, that without them it is impossible to know any thing of certainty. These are the Applauses which they themselves give their own Precepts. But if we consider what we find by Experience concerning the use which these Philosophers have made of those Rules, as well in Logic as in other parts of Philosophy, we may have sufficient cause to mistrust the verity of their Promises.

But because it is not just to reject whatever is beneficial in Logic, because of the ill use that is made

of it; and for that it is not probable that so many great Wits, who have so sedulously studied the Rules of Reasoning, could find out nothing that was solid and material; and lastly for that Custom has introduc'd a kind of necessity for us to have at least a rough knowledge of Logic, we thought it might in some measure contribute to the publick Advantage, to draw from thence whatever it contain'd most serviceable to rectifie our Judgments. And this is chiefly the design of this Treatise, together with some new Reflections that came into our Thoughts while the Pen was in our hands, and which indeed make up the greatest and most considerable part of the whole.

For we find that the ordinary Philosophers had no other intention than to set down the Rules of good and bad Arguments. Now though it cannot be said that these Rules are altogether useless, since many times they serve to discover the Fraud of intricate and puzzling Arguments, and to dispose our thoughts to argue and reel in a more convincing manner; nevertheless we are not to believe that this benefit extends very far; the greatest part of the Errors of Men not consisting in their suffering themselves to be deluded by ill Consequences, but in permitting themselves to be sway'd by false judgments, from whence false Consequences are drawn. And this is that for which they who have hitherto treated of Logic have found but little Remedy; and which is therefore the Subject of the new Reflections so frequent in this Treatise.

Never

Nevertheless, we are obliged to acknowledge that these Reflections which we call new, because they are not to be found in Common Logics, are not all the Author's own; but that we have borrowed some from the Writings of a Famous Philosopher of this Age, wherein appears as much perspicuity and curiosity of Wit, as there does confusion in others. Some few other Reflections we have also drawn from a small *Manuscript* of the deceased *Monsieur Paschal*, entitled, *The Soul of Geometry*, and this is that which we have made use of in the Ninth Chapter of the first part of the Difference between the Definitions of *Name*, and the Definitions of *Thing*, and the five Rules which are explained in the Fourth Part, more largely handled there than in this Treatise.

As to what we have taken out of the ordinary Logic Books, our following Observations declare.

In the first place we had a design to bring into this Treatise all that was really beneficial in others, as the Rules of Figures, the Divisions of Terms and Ideas, with some Reflections upon the Propositions: other things we thought of little use, as the *Categories* or *Predicaments* and *Places*; but because they were short, easie and common, we did not think fit to omit 'em with a caution however, what judgment to make of 'em, to the end they might not be thought more useful than indeed they are.

We were more doubtful what to do with certain other Things, sufficiently knotry, but of little profit, as the *Conversion of Propositions*, the *Demonstration*

ledge of the Rules of Figures; but at length we're
 resolved not to leave 'em out, the difficulty it self not
 being altogether useles: For true it is, that when
 the bone does not terminate in the knowledge of any
 Philo Truth, we may have reason to say, *Stultum est dis-*
h periciles habere nugas, 'Tis a foolish thing to labour in
onfu-difficult trifles. Yet are they not altogether to be
 have avoided, when they lead us to something of Truth,
 eas'd since it may prove to a Mans Advantage to Exer-
 and cise himself in the understanding of Truths that are
 inth intricate.

There are some stomachs that only digest light
 and delicate Diet, and there are some Wits that
 cannot apply themselves to the study of other than
 easie Truths array'd in the Ornaments of Eloquence.
 Both the one and the other is a niceness not to be
 commended, or rather a real Weakness. For a
 Man must endeavour to enable himself to discover
 Truth, when it is most concealed and envelopped,
 and to respect her in what shape soever she appears.
 For if a Man be not able to surmount that niceness
 and distaste; which is easily conceived of things
 that appear a little Subtle and Scholastic, he does
 but thereby contract and shrivel up his Under-
 standing, and render himself incapable to appre-
 hend any more than what is to be known by a long
 Series of several Propositions. So that when one
 Truth depends upon three or four Principles which
 he must necessarily consider and study all at one
 time, he is amazed and foiled, and many times
 deprived of the knowledge of several things highly
 Advan-

Advantageous; which is a Fault of great Consequence.

The Capacity of Man's Understanding shrinks or dilates its self according to use and custom, and therefore for the enlarging of the Intellect the Mathematicks and all difficult Studies chiefly conduce for they cause an Expansion of Thoughts, and exercise 'em in diligence, and embolden them in a steady confidence to stick to what they know.

These are the Reasons that induced us not to omit those thorny Subjects, and to discourse of them as nicely as any other Treatise of Logic. They who think them tedious, may forbear to read them, and indeed we have already given them that caution at the beginning, that they may have no reason to complain, since it is at their own choice to read or let them alone.

Nor did we think it necessary to mind the disgust of some Persons that abhor certain terms of Art, fram'd only to retain more easily the several Figures of Argumentation, as if they were some Charms in Magic, and frequently spend their insipid Jests upon *Baroco* and *Baralipson*, as being too Pedantical; for we looked upon their *Puns* to be more Pedantical than the words; for there is nothing Ridiculous in the Terms, provided they be not adored for too great Mysteries; for it would be very absurd indeed for a Man that was going to dispute, to admonish his Opponent before-hand that he intended to dispute in *Baroco* or *Felapton*.

Men sometimes make an ill use of that reproach

of

Consist of *Pedantry*, and sometimes fall into it themselves, while they lay it upon others. *Pedantry* is a Vice of the Mind not of the Profession; for there are Pedants in all Habits, of all Conditions and all Qualities. To utter Law and mean things in bombast Expressions, to bring in *Greek* and *Latin* by Head and Shoulders, to be in a pelting chase about the Order of the Attick Months, the Habits of the *Macedonians* or such like Frivolous Disputes; outrageously to abuse another, that is not of his Opinion about a passage in *Suetonius*; or about the Etymology of a Word, as if his Religion and his Country lay at Stake; to endeavour to raise all the World against a Man, as a Disturber of the Peace of Christendom, that has not a venerable Opinion of *Cicero*, as *Julius Scaliger* has endeavour'd to do against *Erasmus*; to interest himself for the Reputation of an antient Philosopher, as if he were one of his nearest Relations; this is properly that which entitles a Man to *Pedantry*. But to make use of a term of Art ingeniously found out, for the ease of the Memory, may be easily allow'd without any such Reproach.

It remains that we should give a Reason for omitting so many Questions as are found in the common Logic-Books, as those which are handled in the *Prolegomenas*, universal *à parte rei*, Relations, and such like. To which it may suffice to answer, that they belong rather to *Metaphisicks* than to Logic, though that was not the principal Reason that induced us so to do; for when we believe that such

or such a thing may conduce to rectifie the Judgment, 'tis not material to what Science it belongs. The ordering of various sorts of Knowledge is free as the ranging and methodizing Letters in a Printing-house, provided the Method be natural. 'Tis sufficient that the thing inserted be serviceable to our use, and not to consider whether it be foreign, but whether it be proper, and therefore it that you shall meet in this Treatise with several things appertaining to *Physick*, and *Ethicks*, and as much *Metaphysicks* as are necessary to be known though as for those things we do not pretend to have borrow'd from any other Person. Whatever may be serviceable to *Logick* appertains to it: And indeed it is a ridiculous thing to see how several Authors torment themselves, especially *Ramus* and the *Ramists*, though otherwise Men of Sense, to bound the Jurisdiction of every Science, and to keep them from entrenching one upon another, as if they were marking out the limits of Kingdoms, or bounding the Prerogatives of Parliaments.

But that which induc'd us wholly to lay aside these School-questions was not barely their difficulty, and their being out of use, for we have handled several of the same Nature; but because that having so many bad qualities, we thought they might be dispens'd with, without offending any person, as being so little regarded or esteemed.

For it behoves us to make a great difference between unprofitable questions, with which the Writings of Philosophers are insignificantly stuffed.

Some

Some there are sufficiently condemn'd by the Authors themselves; and others there are which are celebrated and authentick, and which are notoriously handled in the Writings of Persons otherwise of great Esteem.

And therefore it seems to be a kind of Obligation upon us, in reference to those celebrated and common Opinions, how false soever they may be thought to be, not to be ignorant of what has been said concerning them. We owe that Civility, or rather that Justice, not to their falshood, which deserves it not, but to Men prejudiced against them, to prevent their rejecting what others value without Examination. It being but reasonable to purchase at the trouble of understanding those Questions, the priviledge to scorn 'em.

But there is a greater liberty allow'd in reference to the former, and those Logical ones which we have thought fit to omit are of that nature: They have this convenience, that they are of little Credit, not only in that part of the World where they are unknown, but even among those that profess to teach 'em. No Man, God be thanked, takes the part of *Universal à parte rei*, the *Unities of Reason*, nor *Second Intentions*, and so we have no reason to fear least any one should be offended, for passing 'em over in Silence.

Nor will it be amiss to advertize the Reader, that we have allow'd our selves a dispensation, not always to follow the Rules of a Method altogether exact, as having set down many things in the *Fourth Part*,

Part, which relate to the *Second* and *Third*. But we did it of set purpose, because we thought more proper to see in one and the same place, what was necessary to render a Science altogether perfect, which is the main design of the method handled in the *Fourth Part*, and for that reason was that we reserved the Discourse of *Axioms* and *Demonstrations* for that place.

And thus we have well nigh given ye a prospect of our design in this Logic. Peradventure for all this there will be very few that will reap any Advantage by it, because it is not their Custom usually to practice Precepts by express Reflections. Nevertheless, we hope that they who will carefully peruse these Sheets, will receive such a Tincture from thence, as will render them more exact and solid in their Judgment before they perceive it; as there are certain Remedies that cure the Diseases of the Body, by augmenting and fortifying the vigour of the Parts. However it be, the Treatise will be no long trouble to any one; for they who are but a little before hand in the World of Learning may read and con it in seven or eight days, and it is a hard case, if in a Treatise that contains so much Variety, they do not find something sufficient to repay their trouble.

THE SECOND DISCOURSE,

containing an Answer to the Principal Objections made against this Logic.

THEY who adventure to impart their Works to publick view must resolve at the same time to have as many Censurers as Readers. Nor ought this Condition to appear either unjust or burthensom. For if they are really uninterested, they ought to have abandon'd their Propriety in making the thing publick, and from that time look upon it with the same indifference, as upon the Works of a Stranger.

The only right that they can reserve to themselves is that of correcting what shall be found defective, to which end those various Censures that are made of Books, are very advantageous. For they are always profitable when they are just; and when unjust, they do no harm.

Nevertheless Prudence sometimes requires that upon several Occasions we should submit to Censures not always altogether so just; for though they do not make appear the thing reprov'd to be bad, they shew us at least that it is not proportionable to the Understanding of those that find fault. Now it

is better without doubt, if it may be done without falling into any greater Inconvenience to chuse Temperature so just, as in satisfying the judicious not to displease those whose Judgments are not so exact. Since 'tis not to be supposed, that all our Readers will be Men of Wit and Intelligence.

Thus, it were to be wish'd, that Men would not look upon the first Editions of Books, but as upon Essays which the Authors propose to the Learned to understand their Sentiments of the Composition; the end that by a Collection of various Thoughts and Censures, they may endeavour upon a second review to bring their Work to Perfection to the utmost of their Capacities.

And this is the Course we would willingly have taken in the *Second Edition* of this *Logic*; had we heard more than what the World had already said of the former. Nevertheless we have done what we could; as having added, struck out, and corrected several things according to the thoughts of those who were so kind as to let us know their Objections.

And first of all for the Language, we have almost in every thing follow'd the advice of two Persons who gave themselves the trouble to observe some faults that were crept in through Inadvertency, and certain Expressions which they thought were not properly chosen. Nor did we adhere to their Opinions till by Consultation with others, we found that all their Opinions agreed. In which case we thought we might be allow'd our Liberty.

The Reader will find more Additions than Alterations.

ations or Retrenchments; not being duly inform'd
the faults that were found in what was already
one. However 'tis true what we understood of some
neral Objections that were made against the Book,
which we thought no Let to our further Progress;
believing that they themselves who made 'em, would
sily be satisfyed, when we should give our Reasons
er what we did. For which Cause, it will not be a
nifs to return an Answer to the chiefest of those
Objections.

Some there were offended at the Title, *Of the Art
of Thinking*, instead of which they would have had,
the Art of well Reasoning. But we desire 'em to consi-
der, that in regard the Aim and Design of Logic is
to give Rules for all the Actions of the Understan-
ding and as well for simple *Ideas*, as for Judgment
and Arguments, there was no other word that com-
prehended all those different Actions; whereas the
word *Thought* comprehends 'em all. Simple *Ideas* are
thoughts; *Judgments* are thoughts, and *Arguments* are
thoughts. True it is, a man might have said the Art
of *well thinking*; but that Addition was not necessa-
ry, being sufficiently imply'd by the word *Art*, which
signifies of it self a method of doing any thing
well. And therefore it is enough to say *the Art of
Painting, the Art of Numbring*; since no Man suppo-
ses it to be an Art to Paint it, or mistake in casting
Accomps.

There is another Objection against that multi-
tude of things drawn from other Sciences discours'd
of in this Logic. Which because it assaults the
whole

whole Design, and gives us an occasion to exp^lain
 our selves, it is necessary to examine with so much
 the more care. To what purpose, say they, is
 this motley, variety of *Rhetoric*, *Ethics*, *Physic*, *Meta-
 physics* and *Geometry*? When we thought to manage
 only with Logical Precepts, we are transported
 a suddain into the Upper Region of the most lofty
 and notional Sciences, before the Author knows
 whether we understand them or not. Rather ought
 he not to have consider'd, that if we had all these
 Sciences already perfect, we should have no need
 of his Logic? And had it not been better for him
 to have given us a plain and down-right Logic
 with Rules explain'd by Examples drawn from
 common Things, than to encombe them with
 perplext and intricate Notions.

But they who argue thus, have not sufficiently
 consider'd, that the greatest disadvantage to a Book
 is, not to be read; since it can only be serviceable
 to those that read it. And so whatever contributes
 to cause a Book to be read, contributes to render it
 useful. Now it is certain, that had I gratified the
 Fancies, and made a dry barren Logic with the
 usual Example of *Animal* and *Horse*, how exact so-
 ever and methodical it might have been, it would
 have only augmented the number of so many other
 Books, of which the World is full, and which are
 therefore never read. Whereas it is this Collection
 of different Things that has procur'd the Sale of
 this, and caus'd it to be with less annoyance and
 distast than others.

Never

exp Nevertheless this was not the principal Aim we
so mad in this mixture ; for we are apt to believe we
hey, we follow'd the most natural and most useful way
sic, in handling this Art, by applying a Remedy, as
so much as in us lay, to an inconvenience, that ren-
ported the Study of it almost Fruitless.

st lo The Experience shews us, that of a Thousand
knowing Men that learn Logic, there are hardly Ten
ought know any thing of it, six Months after they
all have performed their Exercises. Now the real cause
o no this so frequent either forgetfulness or negligence
r hems to be this, for that all the Subjects treated of
Log Logic, being of themselves abstracted and remote
from use, the Examples also by which they are ex-
wain'd are no way taking, and seldom discours'd
otherwise ; so that making no impression upon
ent the Fancy, they are with the greater difficulty re-
Boo in'd in memory, which suddainly loses all the *Idea*
eab had a while ago conceiv'd.

out Moreover finding these common Examples not
er efficient to prove that the Art it self may be ap-
they'd to any thing useful, they accustom themselves
the immure Logic within it self, not suffering it to
extend any farther ; whereas Logic was invented
ule be serviceable, as an Instrument to the rest of
he Sciences ; so that having never seen its true use,
they never make any use of it, but are glad to be
id of it, as of a mean and unprofitable Know-
edge.

For remedy of which Inconveniency, we thought
the best way not to seporate Logic, according to
the

the usual Custom, so far from the rest of the Sciences, for the Service of which it was design'd but to join them together both the one and the other by the means of Examples drawn from solid Reasoning, shewing at the same time both the Rules and the Practice, to the end that so the Scholar may learn to judge of those Sciences by Logic, and retain Logic in his Memory, by the help of those Sciences.

So that this Variety is so far from being a means to darken these Precepts, that nothing can contribute more to brighten and explain them; for of themselves they are too subtil to make any Impression upon the Mind, if there be not something to make them pleasing and acceptable to the Fancy.

Therefore to render this mixture the more acceptable, we have not borrow'd Examples at a venture from those Sciences, but have made choice of the most important Points of Truth, and what might be most serviceable to the Rules and Principles to find out the Truth in other Matters, which could not be handled at the same time.

For Example, as to what concerns Rhetoric we consider'd that there is little advantage to be drawn from that Art, for the finding out of Thought Expressions and Embellishments. Our wit furnishes us with Thoughts; Use affords us Expression, and for Figures and Ornaments they are many times superfluous, so that all the Benefit from them consists in avoiding certain evil Habits of Writing and Speaking, especially an Artificial and Rhetorical

Stile compos'd of false Imaginations, *Hyperboles*, and forc'd Figures, the most unpardonable of all Vices in an Orator. Now perhaps you will find in this Logic, as much Information for the knowing and avoiding those Defects, as in those Books that expressly handle that Subject. The last Chapter of the *First Part*, shewing the Nature of figured Stile, at the same time, shews the use of it, and discovers the true Rule by which you may know *Legitimates* from *Spurious* Figures. The Chapter where we treat of *Places* in general, may very much avail to prune off the superfluous abundance of vulgar Arguments. That Article wherein are mark'd out false and ill-cohering Ratiocinations, into which the Vain-glory of long and ornamental Haranguing frequently engages many, while it throws disgrace upon all manner of Falshood, proposes by the by, a most important Rule of Rhetorick, than which there is nothing more prevalent, to frame and adapt the Mind to a simple, natural and judicious Stile. Lastly, where we are in the same Chapter caution'd to beware of provoking those to whom we direct our Speech by sharp and biting Language, we are also taught to avoid several Errors, which are therefore so much the more dangerous, by how much they are most difficult to be observ'd.

As for *Ethics*, the principal Subject of this Treatise would not permit us to insert more than we have done; nevertheless, I am apt to believe by what is set down in the Chapter of false *Ideas*, of

Good and Evil, in the *First Part*, as also in that over-
 ther Chapter of fallacious arguing that happens in
 civil Converse, that Men may see the large extent
 of it, and how it conduces to display a great part
 of human Irregularities.

There is nothing in *Metaphysics* more considerable
 than the Original of our *Ideas*, and the separation
 of Spiritual *Ideas*, from Forms Corporeal. The
 distinction of the Soul from the Body, and the
 Proofs of its Immortality founded upon that distinction.
 All which things are largely handled in the *First*
First and Fourth Part.

In several Places also occur the greatest part of
 the general Principles of *Physic*, which it will be no
 difficult thing to Collect together. From whence
 the Reader may be sufficiently enlightned in what
 is most proper to be known concerning Pondero-
 sity, the sensible Qualities, the Actions, the Sences,
 the attractive Faculties, the occult Vertues, sub-
 stantial Forms, sufficient to undeceive us of an in-
 numerable Company of false *Ideas*, which we
 suck'd in from our Infancy to the prejudice of
 Truth.

Not that I, however, because here are many
 things to be learn'd, would have the Reader neg-
 lect such Books as expressly treat upon those Sub-
 jects, which are therefore carefully to be study'd.
 But we have considered that there are certain Per-
 sons, who may think this general and cursory
 Knowledge of the Sciences sufficient; and so it may
 be perhaps to those that never intend to devote them-
 selves

oves to the study of Divinity. For Theology requires an accurate Knowledge of Scholastic Philosophy, which is as it were its Mother Language. Now though it is impossible they should find all that they have to learn in this Book; nevertheless, we dare affirm, they may find whatever is convenient to be laid up in the memory for Use.

As to what they object, that there are some of these Examples that are not proportionate to the Capacities of young Beginners; they err in their affirmation, unless it be in reference to Geometry. For as for any of the rest, they may be easily understood by all that are not altogether void of Understanding, though they never learnt any thing of Philosophy. Nay, perhaps, they may be more easily understood by those who are as yet free from that manner of prejudice, than by such as are amply furnish'd with the Maxims of common Philosophy.

As for the Examples of Geometry, 'tis very true they will not be understood by all the World; but where lies the Inconvenience? For they are only brought where Geometry is expressly, and by itself, discours'd of, and so may be pass'd over without any harm; or at least where the things are so clear of themselves, that they need no illustration, or else are so explain'd by other Examples, that the help of a Geometrician is no way requisite.

Besides, if they examine the places where these Examples are made of, they will see that it was a hard matter to find others that were so proper; there being only this Science which is able to afford

us clear *Ideas* and Propositions not to be controverted.

For Example, speaking of reciprocal Proprieties, we have affirm'd, that there is such a Propriety in Rectangle Triangles, where the Square of the *Hypotenuse* is equal to the Squares of the rest of the sides. Which is clear and certain to all that understand it: They that do not apprehend it, may suppose it to be so; nor will they for that the less apprehend the thing it self, which the Example brought to prove.

Again, if we had been to produce the common Example of *Risibility*, which is the reciprocal Propriety of Man, certainly we had propos'd a thing not only very obscure but very much controverted. For if we understand by *Risibility*, a power of contracting and dilating the Lips, I know not why we may not teach Beasts to imitate those Motions of the Lips; and some we know there are that do so. But if we include within the signification of this word not only the change of the Countenance, but also the Thoughts that accompany and produce it; and so by *Risibility* mean a Power to Laugh, *by thinking* in that manner all human Actions may be called reciprocal Qualities; there being none but what are proper to men, if we join them with *Thoughts*. And thus Walking, Eating, Drinking shall be called reciprocal Qualities of Men; since one Man Walks, Eats and Drinks *thinking*. Which if it be granted, we shall never want Examples of reciprocal Proprieties; which however will never satisfy those

those, who attribute *Thinking* to Beasts, and who may as well allow them *Laughter* with *Thought*. Whereas the Example before alledged will not admit these Cavils as being certain and uncontroverted among all Men.

In another place, we hinted that there are some Corporeal things which we apprehended after a Spiritual manner, without the help of Imagination. And to confirm this, we brought the Example of the *Chiliogon*, or Thousand Angled Figure. Which Figure we conceive clearly and distinctly in our Minds, though the Imagination cannot from any delineation of it, be so distinct as to display its Proprieties. Curiously also we asserted that one of the Proprieties of this Figure was, that all these Angles were equal to 1996 Right Angles. And it is apparent that this Example proves what we intended to make out in that place.

It remains that we clear our selves from an envious Complaint that some Persons have made against Us, that we have taken out of *Aristotle's* Examples of various Definitions, and ill cohering Argumentations; which seems to be done out of a secret design to destroy the Peripatetic Philosophy.

But they had never pronounced so severe a Sentence against us, had they considered the Rules to be observed in citing Examples of Errors, which however we have adhered to in quoting *Aristotle*.

First, Experience shews us, that those which are vulgarly propos'd, are of little or no use, and difficult to be remembred, as being fram'd at plea-

sure; besides that the Errors are so palpable and visible, that a Man would think it impossible to stumble upon them. Therefore it is much more to the purpose, to the end that what is said concerning those Errors, may be the more deeply retain'd in Memory, and the more easily avoided, to select some notable Example of the Errors, in which some celebrated Author has already fallen.

For finding the Reputation of great Men not free from noted slips, we are incited by Care and Industry to preserve our selves from the like Surprizes.

Moreover seeing every Man is bound to make what he writes as profitable as may be, therefore of set-purpose those Examples of Errors are to be produced, of which it most imports us not to be Ignorant. For it would be an endless Toil to remember all the dreams and trifles of *Flud*, *Vambourmont* and *Paracelsus*. And therefore it is better to search Examples in Famous Authors, whose Errors it may be worth while to understand.

Now all this is to be found in *Aristotle* to a Hair Breadth. For nothing can so effectually persuade a Man to avoid a fault, as to shew that such a Man as he, stumbled at the same Block. And his Philosophy is become so famous through the vast number of deserving Persons that have embraced it, that there is all the Reason in the World, his Defects should be expos'd. Which being so, we thought it would be worth while for the Reader to take a review of the Maxims of the Peripatetic

and Metaphysics Philosophy, yet because it is never good to be deluded, those Maxims are so propos'd, that what they are may be easily known, as having cursorily marked out the Defects, for farther detection of their Fallacies.

Which we have not done to lessen the Reputation of *Aristotle*; but rather to do him honour as much as may be done by those that differ in Opinion from him. And 'tis visible in other places, that the points which are tax'd of Errors, are of no great Importance, nor shake the Foundations of his Philosophy, which we had no Intention to assail.

But if we make no mention of those things wherein *Aristotle* has excelled in several of his Books, the Reason was this, because the Series of the Discourse did not afford an Opportunity so to do; which however we would willingly and gladly have done, if Occasion had offered; nor had *Aristotle* wanted his due Applause, who, beyond all Controversie, was a Person of a capacious and searching Genius, upon which he relying, has linked together long Chains of Consequences in such Matters upon which he discoursed: And therefore he has been very Prosperous in what he has written in the Second Book of his Rhetoric concerning the Passions. Egregious also are his Notions and Observations which he has delivered in his Politics, his Ethics, his Problems, and his History of Animals: And as confused as his *Analytics* are, yet we must confess that almost all we know concerning

the Rules of Logic, is taken from thence; that there is not any Author from whom we have borrowed more than from *Aristotle* in the Logic, as one to whom the Body of the Precepts belong.

True it is, that the most imperfect of his Works seems to be his *Physicks*, as being also that which for a long time as been condemn'd and forbidde by the Church, as a Learned Person has made appear in a Treatise written to that purpose though the principal Fault of it was not that it was False, but that it was too True, and taught nothing but such Things as could not be concealed from our Knowledge. For whoever doubted but that all Things were composed of Matter and a certain Form of Matter? Whether Matter being to put on Form did not want it before, that is to say, whether it did not suffer Privation? Or whoever question'd those other Principles of his *Metaphysicks*, wherein we are taught that all Things depend upon Form; that bare Matter is void of Action; that there are Place, Motion, Faculties and Qualities: But after all this, we do not seem to have learn'd any thing new, or are we more able to give a Reason of any of Nature's Effects.

But if there be any Persons, as many there are, who believe it a Crime to dissent from *Aristotle*, it will be no difficult thing to make it appear how far remote from Reason such a vain Assertion is.

For if we are oblig'd to Reverence the Memory of some Philosophers, that is only for two Reasons, either out of a Prospect of the Truth to which they have adhered, or for the Reputation which they have acquir'd among the Learned.

For the sake of Truth we Reverence them, when they keep close to it; but Truth does not require that we should honour Falshood, in whomsoever it appears.

As for the Consent of Men, in the Approbation of a Philosopher, certain it is, that 'tis a good Reason for giving Respect, nor can it be denied, but very imprudently, without great wariness. And the Reason is, because in contradicting the Generality, we may be justly suspected of Presumption, as believing our selves more clear-sighted than so many others.

But when the Learned World is divided in their Opinions, as to the worth of an Author, and that Persons of Reputation appear on both sides, we are not then oblig'd to that Reservedness, and we may freely declare what we approve, and what we dislike in those Writings about which the Learned are divided. For then we do not oppose our *Sentiments* against the *Sense* of the Author and his Abettors, but side with those that maintain the contrary Party.

And now behold the true Condition of *Aristotle* at this Day. His Philosophy has experienced both Fortunes, sometimes exploded and condemned by all; otherwhile received and applauded by all.

At this Day it is reduced into a middle Condition between the two Extrems. In France, Flanders, England, Germany and Holland they Write frequently for, and against, *Aristotle's* Philosophy. The *Parisian* Conferences as well as their Writing are divided into Two Parts; nor does any one complain of this open War, declared against him. The most famous Professors no longer condemn themselves to that Slavery of blindly receiving and maintaining whatever they find in his Books, and some of his Opinions are utterly exterminated for what Physician will now maintain that the Nerves proceed from the Heart, as *Aristotle* believed, since Anatomy clearly demonstrates now, that they derive their Original from the Brain. Whence proceeded that saying of *St. Austin*,

Qui ex puncto cerebri & quasi Centro omnes Sensus diffudit.

Who diffus'd all the Senses from the Point, and, as it were, the Center of the Brain.

And what Philosopher dares be so obstinate as to affirm, that the swiftness of ponderous Things descending, encreases proportionably to the proportion of their Weight? When any Man may end this dispute, by letting two ponderous Bodies never so unequal in proportion, fall from a high place, at what time he shall find very little difference in the swiftness of their Motion.

All things violent are of short Continuance, and all Extrems are violent. 'Tis very hard measure to proscribe all *Aristotle's* Opinions, as formerly

nerly has been done. On the other side, it is an unreasonable Servitude, for a Man to pledge his Assent to all he has written, and to allow only him for the standard of Philosophy, as afterwards they went about to do. Men cannot long endure such a Tyranny, but by degrees they will recover the Possession of their rational Liberty, which consists in approving what they judge to be true, and rejecting that which they judge to be false.

For it does not seem contrary to Reason, that Reason should submit to Authority in Sciences, which treating of Things above Reason, are bound to follow another Light, which is that of Divine Authority. But in Sciences that depend upon the support of Reason; Reason acts well and by her own Precepts, when she Decrees that there is no Obedience to be given to the Authority of Philosophers against Reason.

This is the Rule, which we have follow'd in discoursing the Opinions of the Philosophers, as well Antient as Modern, we have sought for Truth in both, neither espousing the quarrel of any Sect, nor bidding battle to any.

So that all that is to be concluded, when we reject the Opinion of *Aristotle*, or any other is only this, that in such a point we dissent from; not, that we do not consent in others; much less that we have any Aversion against them; or seek to Degrade or Lessen their worth. And this modest procedure of ours, we hope, will be approved by all just Judges, and that they will acknowledge-

knowledge, that there is nothing in the whole World, but a sincere desire to contribute to the publick Good, as far as lies in the power of a Creature of this Nature, without Passion or Hatred against any Person living.

LOGIC.

LOGIC:

OR, THE

ART

OF

THINKING.

LOGIC is the Art of well using Reason in the Knowledge of Things, for the Instruction as well of a Man's self, as of others.

This Art is derived from the Reflections which Men have made upon the Four Principal Operations of the Mind; *Apprehension, Judgment, Discourse and Disposition.*

We call *Apprehension* the simple Contemplation of Things that present themselves to the Mind, as when we consider the Sun, the Earth, a Tree, Roundity, a Square, Cogitation, Entity, pronouncing nothing expressly concerning them; and the Form under which we consider them is called an *Idea.*

We

We call *Judgment*, that Action of the Mind, by which assembling together several *Ideas*, we either deny or affirm This to be That. Thus considering the *Idea* of the *Earth*, and the *Idea* of *Round*, we affirm or deny the *Earth* to be round.

Discourse we call that Operation of the Mind, by which out of several Judgments we frame another. Thus when we have judged that true Vertue ought to be referred to God, but that the *Pagans* did not refer it to God; from thence we infer, that the Vertue of the *Heathens* was not true.

We call *Disposition* that Action of the Mind, by which we range various *Ideas*, *Judgments* and *Reasonings* upon one and the same Subject, in the Order which is most proper for its Explanation and this by another Name we call *Method*.

These Operations proceed meerly from Nature and that sometimes more perfectly from those that are altogether ignorant of Logic, than from others that have learn'd it. || So that it is not the business of this Art to find out the way to perform these Operations, for that we have from Nature alone, that has given us the Use of Reason, but rather to make certain Animadversions upon those Things which Nature her self operates in us, which may be of a threefold Use to us.

First, we are thereby assured, that we make a right use of our Reason. For the Consideration of Rules begets in us a more fervent Application and attentive Industry of the Mind.

The *Second* is, That thereby we more easily detect and explain the Errors and Defects, which we meet within the Operations of the Mind. For oftentimes it falls out, that we discover by the meer Light of Nature the Faults of Ratiocination, yet are not able to give a Reason why it is false. Thus they who know not what belongs to Painting, may take Exceptions at the Defects of a Picture; though they are not able to tell the Reason why they find fault.

The *Third* is, That we are brought to a more accurate Knowledge of the Nature of our Understanding by these Reflections upon the Operations of the Mind: Which, if we look no further than meer Speculation, is to be preferred before the Knowledge of all Corporeal Things, which are infinitely below Spiritual Considerations.

Now supposing those Things, which we revolve in our Minds, in reference to our own Thoughts, were only done with respect to our selves, it would suffice to consider them in themselves, not cloathed with Words or any other Signs: but in regard we cannot manifest our Thoughts to others, but by the Benefits of exterior Marks: And for that this Custom is so prevalent, that when we meditate alone, the Things themselves do not present themselves to our Thoughts, but in the cloathing of those Words by which we express them to others, it is necessary for Logic to consider *Ideas* join'd to Words, and Words join'd to *Ideas*.

And

And thus by what we have said it follows, That Logic may be divided into Four Parts, according to the several Reflections which we make upon Four Operations of the Mind.

FIRST PART.

Containing Reflections upon Ideas, or upon the first Operation of the Mind; which is called Apprehension.

SINCE we cannot have any Knowledge of what is without us, but by the assistance of *Ideas* which are within us, what we shall discourse of *Ideas* may be thought perhaps to be the most important part of Logic, as being the foundation of all the rest.

We may reduce these Reflections to five Heads according to the five ways of considering *Ideas*.

1. According to their Nature and Original.
2. According to the principal difference of the Objects which they present.
3. According to their being single or compound; where we shall treat of *Abstractions* and *Precisions* of the Intellect.
4. According to their Extent or Restriction; that is to say, their Universality, Particularity or Singularity.
5. According as they are clear and obscure, distinct or confused.

CHAP. I.

of Ideas, according to their Nature and Original.

THE word *Idea* is of the number of those words which are so clear, that they need not to be explained by any other ; there being no other more clear and simple.

So that all that can be done in this case, to avoid Error and Mistake, is to observe the false Notions and Interpretations that may be attributed to this Word ; while some make use of it only to signify that manner of conceiving, which is perform'd by the application of the Mind to those Forms that are depainted in our Fancies, and is call'd *Imagination*.

For as *St. Austin* observes, Man ever since his Fall has been so accusom'd to contemplate Corporeal Things, the Forms of which enter through our Sences into our Brains, that the most part believe they cannot apprehend a thing, when they cannot imagine it, that is, contemplate it as a *Thing Corporeal* : As if Man had no other way to think or apprehend.

Whereas no Man can make a Reflection upon what occurs to his *Thoughts*, but he must acknowledge, that he conceives many things altogether destitute of Corporeal Form ; and finds a difference be-

between *Imagination* and perfect Understand
As for Example, when I imagine a Triangle,
not contemplate it only as a Figure consisting
three Right Lines ; but I also consider those three
Right Lines as present, by the force and inter
Application of the Mind ; and this is properly
imagine. Or, if I would think of a Figure with
a Thousand Angles, I presently apprehend that
is a Figure consisting of a Thousand sides, as easily
as I apprehend a Triangle to consist of three
Sides ; but I cannot imagine the Thousand Sides
that Figure, nor behold them as being present, with
the Eyes, as I may so say, of my Mind.

Nevertheless, 'tis very true, that the daily practice
of *Imagination*, in apprehending Corporal
Things is the Reason, that oft-times, when I
imagine a Figure of a Thousand Angles, we form
in our *Thoughts* some confused Figure or other. But
it is evident, that the Figure thus formed by the
Assistance of *Imagination*, is not a Figure of a Thousand
Angles ; as nothing differing from that Form
which any one would frame in his *Thoughts*, when he
wishes to imagine a Figure of Ten thousand Angles
as also for that it is no ways serviceable to discover
the Proprieties that made the difference between
a Figure of a Thousand Angles from any other Poly
gon.

And therefore I cannot properly imagine a Figure
of a Thousand Angles, for that the Figure
which I would frame in my *Imagination* would not
present to me any other Figure with a great Num

of Angles; and yet I can very clearly and distinctly conceive it, as being able to demonstrate its Proprieties; as that all the Angles together are equal to 1996 Right Angles. And thus by consequence it is one thing to *imagine*, another thing to *comprehend*.

This is yet more evident by the Consideration of many Things which we clearly apprehend, and yet can no way in the World attain them by *Imagination*. For what do we apprehend more clearly, than our *thought* when we *think*? Nevertheless, it is impossible to *imagine* a *Thought*, nor to delineate any Form of it in the Brain. What Forms of the Particles of Affirmation, *Yes*, and the Negation, *No*, can be describ'd in the Fancy. Yet both he that denies, and he that affirms the *Earth* to be round have the same express *Imaginations*, *Earth* and *Rotundity*. To these the one adds Affirmation, which is an Action of the Mind, which conceives without any corporeal Form; the other adds a Negative, which is another Action of the Mind, and much more incapable of a formal Description.

When we speak then of *Ideas*, we do not call by that Name those Images that present themselves to the Fancy, but whatever offers it self to our *Thoughts*; at what time we may truly affirm, that we apprehend a certain *Thing*, after whatever manner we apprehend it.

Whence it follows that we can express nothing in words, so that we understand what we say, but that it is evident from thence, that we have in our selves

selves the *Idea* of the thing signified by our word, though that *Idea* may happen to be sometimes more plain and distinct; sometimes more obscure and confus'd, as we shall declare hereafter. For he who contradicts himself that should affirm, he knew not what he meant by the words which he pronounces; yet at the same time that he pronounces them, he does not understand nothing but the sound of those words.

And this is that which shews us the falsity of the Opinions, broached by the Philosophers of the Times.

The first is, that we have no *Idea* of God. For if we had none, in pronouncing the word God, we should apprehend no more than the three Letters G, O, D, and he that only speaks *English*, would have no more in his *Thoughts*, when he hears the word pronounced, than if he should come into a Synagogue, not understanding a tittle of *Hebrew*, and hear the Names of God, *Adonia* or *Elohim*.

Moreover when some Men would be called Gods (which was the Frenzy of *Caligula* and *Domitian*) there could be no Crime of Impiety laid to the Charge, for that there is nothing in the three Letters G, O, D, or the two Syllables *De-us* which may not be attributed to a Man, abstracting the *Idea* from the word: For which reason the *Hollander* was never tax'd with Impiety, who call'd himself *Ludovicus De-us*. What was then the Impiety of those Princes, but that they left at least a part of the *Idea* to the Word *Deus*, so that it signified that transcendent and adorable Nature of a Deity, and

appropriated to themselves both the Word and the
 But had we not the *Idea* of God, upon what
 could we ground all that we say of God? As that
 is *One*, that he is *Eternal*, *Omnipotent*, all *Mercy*,
 and all *Wisdom*. Of which there is nothing com-
 prehended in the sound of the word, *God*; but in
 the *Idea* which we have of *God*, and which we join
 to the sound of the Word.

And hence it is that we refuse the name of *God*
 to all False Divinities; not but that the Word
 might be attributed to them, being taken materi-
 ally; but because the *Idea* which we have in our
 minds of the Supreme Being, and which we have an-
 nexed to the word *God*, belongs only to the *True*

The second of the false Opinions is, what an
 English Man asserts, *That Ratiocination is nothing else*
but a Connexion and Chain of Names link'd together by
the word, Est, it is. Whence it follows, that by
Reasoning we can conclude nothing of the Nature of
Things, but only concerning their Appellations; that is
to say, that we barely see whether we assemble together
well or ill, according to the Covenants we have made
with our Fancy concerning their Significations.

To which the same Author adds, *If this be true,*
as it may be it is, Reasoning will depend upon Words,
Words upon Imagination, and Imagination, perhaps, and
which is my Opinion, will depend upon the Motion of the
Corporeal Organs, and so our Soul will prove no other
than the Motion of some parts of the Organical Body.

We

We are willing to believe, that these Words contain an Objection far remote from the Sense of the Proposer ; but in regard that being so Dogmatically expressed, they ruin the Immortality of the Soul, it will be of great Importance to lay open the Fallacy of the Objection ; which it will be a difficult thing to do. For the *Covenants*, of which the Philosopher speaks, can be no other than the consent of Men, to take certain Sounds for Signs of those *Ideas* existing in our Minds. So that if we had not besides the Names, the *Ideas* of Things in our selves, those Covenants would have been impossible ; as it is impossible by any such Covenant to make a blind Man understand what is meant by the words, *Red*, *Green* or *Blew*. For not having these *Ideas* in his Mind, he cannot join them to the Sound.

Moreover several Nations having given different Names to *Things*, even to those that are most apparent and simple, as are those which are the Objects of Geometry, they could not discourse in the same manner of the same Truths, if Discourse were nothing but a Connexion of Names by the Word, *Est, it is*.

And since it appears by this variety of words, that the *Arabians* (for Example sake) do not agree with the *English* about the same signification of Names, so could they never agree in Judgment or Discourse, if their Discourse depended upon that Covenant:

Lastly,

Wor- Lastly, when we say, that the signification of
ence ds are *Arbitrary* or *ad placitum*, we stick deep
ogni Equivocation. For it is true, that it is a thing
of together *Arbitrary* to join this *Idea* to that Sound,
opier than another. But *Ideas* are not *Arbitrary*
be ings that depend upon our Fancy, more especi-
which those that are evident and distinct: Which that
n the may make manifest we say, that it would be
Signy ridiculous to think that real Effects could de-
at ed upon things purely *Arbitrary*. Now when a
binger has concluded by his Reason, that the Iron
a intel that passes through the two Mill-stones of a
narn-mill could turn about, without turning the
earer Mill-stone, if being round it pass'd through
ha round hole; but that the same Axle could not
nenn, without turning the upper Mill-stone; if be-
square, it were fastned in a square hole of the
emper Mill-stone; what he has undertaken to prove
ap- leniably follows. And by consequence this Dis-
Ob- serve is not a Connexion of Names according to a
he venant entirely depending upon the Fancy of
men; but a solid and conclusive Judgment of the
rd, ture of Things, by the consideration of *Ideas*,
which Men have been pleas'd to denote and signifie
s, certain Names.

a- Thus much as to what we understand by the
of word *Idea*; we are now to say something concern-
ing their Original.

And now the Question is, whether our *Ideas*
proceed from the Senses, and whether the com-
mon Maxim be true, *There is nothing in the Intellect,*
which was not first in the Sense.

This

This is the Opinion of a Philosopher of great Reputation in the World, who begins his *Logic* with this Proposition; *Every Idea derives its Origin from the Senses*. He confesses however that all *Ideas* are not the same in our Senses, as they are in the *Mind*. But he pretends that they were at least form'd out of those that pass through our Senses, either by composition; as when out of the separate *Ideas* of Gold, and a Mountain, we make a *Mountain of Gold*; or by Amplification and Diminution, as when out of the *Idea* of a Man of ordinary Stature, we make a *Giant* or a *Pigmy*; or by Similitude and Proportion; when out of the *Idea* of a House we have seen, we make the Delineations of a Structure that we have not seen: And thus, saith he, we apprehend *God* who is above the reach of Sense, under the shape of a venerable Old Man.

But according to this Doctrine, it would follow that all our *Ideas*, tho' relating to no particular Object that ever approach'd our Senses, must be all Corporeal, and represent nothing to us, but what has pass'd at least by parts, through our Senses; and consequently that we can conceive nothing but by the help of Images, like those which are form'd in the Brain when we see or imagine Bodies.

But tho' this Opinion be maintain'd by other School Philosophers as well as himself, I shall not scruple to affirm that it is very absurd, and as contrary to Religion as to true Philosophy. For to suppose nothing but what is evident, what is there that we can conceive more distinctly than our thoughts themselves?

es? what Proposition clearer than this, *I think, before I am*? However we can never be certain the Truth of this Proposition, unless we understand distinctly what it is to *Be*, and what to *Think*. Neither is it to be required from us to explain these terms any farther; because they are such that Men so clearly understand, that a copious explanation would but render them more obscure. Then it cannot be denied but that we have in our selves the *Ideas* of *Entity* and *Thought*, I ask, through what door of the Senses they entered into the Mind? Are they *Ideas* of Light or Colours to enter through the *Sight*? Are they shrill or deep sounds to make way through the *Ear*? Are they Odoriferous or noisome to enter the *Smelling*? Are they Savory or nauseous to enter the *Taste*? Hot or cold, soft or hard, to glide through the *Feeling*? If it be said, they were formed of other sensible Images, let them demonstrate what those sensible Images are, from whence these *Ideas* of *Entity* and *Thought* proceeded; as also how they were formed, whether by *Composition* or by *Amplification*, by *Diminution* or *Proportion*; for if they cannot answer agreeably to Reason, it must be taken for granted, that the *Ideas* of *Entity* and *Thought* are far from any deriving their Original from Sense; but that our Soul is endued with a Faculty to Form them of herself, though it may happen sometimes, that she may be incited to make use of something that strikes the Sense. As a Painter may be induced to paint a Picture for the Price that is promised him;

him; and yet it cannot be said that the Picture drew its Original from the Money.

But what the same Authors add, That the Idea which we have of God, draws its Original from the Picture, because we apprehend him under the Image of an Old-man, is a thought unworthy any other than the *Anthropomorphites*, and which confounds the true *Ideas* that we have of Spiritual Things with the false Imaginations that we conceive of the Sublimes out of an evil Custom, of imagining all things amiss; whereas it is as absurd to pretend to imagine that which is not Corporeal, as to hear Colours and see Sounds.

To refute this Opinion, we need no more than consider, that if we had no other *Idea* of God, than of a venerable old Man, all those other Judgments which we make of that *Idea* ought to appear false to us, that are contrary to the *Idea*; for we are naturally induced to believe that our Judgments are false, when we clearly see that they are contrary to the *Ideas* which we have of things. Otherwise we shall never be able to conclude certainly that God does not consist of parts, that he is *Incorporeal*, *Omnipresent* and *Invisible*, when all those *Ideas* are no way agreeable to that of a Venerable old Man. And if God had at any time ever appear'd in that Form, it does not presently follow that we should have no other *Idea* of him but that; for so we should have no other *Idea* of the *Holy Ghost* than that of a Dove, because he once appear'd in that Shape, as God in the same manner might

might be conceived to be a *Sound*, because the *Sound* in which the Name of God is pronounced, represents the *Idea* of God in our Minds.

It is therefore false, that all our *Ideas* proceed from the Sense; rather it may be affirmed on the other side, that none of those *Ideas* that enter our Minds, deduce their Original from the Senses unthemselves by accident, that is when the Motions stirred up in the Brain, which is all the Senses can do, give an occasion to the Soul, to produce true *Ideas*, which would not otherwise do; though for the most part those *Ideas* are nothing like the other that are form'd in the Sense and in the Brain; and besides, the greatest number of *Ideas* being such, as not deriving any mixture of Corporeal Form, cannot without a most manifest absurdity, be referred to any Sense.

If any one object, that at the same time that we have an *Idea* of spiritual Things, as of *Thought* (for the examples sake) we entertain also a certain Corporeal Image of the sound that expresses it, they agree nothing contrary to what we have already prov'd; for that form of the Sound which is present in the Imagination, is not the Image of the *Thought*, but of the Sound; nor does it serve to represent it otherwise, than as the Soul being accustomed when she hears this Sound, to conceive the *Thought*, forms at the same time an *Idea* of *Thought*, altogether Spiritual; which has no resemblance to the *Idea* of Sound, but as only annexed to it by Custom; which is apparent in Deaf People,

who have no *Ideas* of Sound, yet have the *Idea* of their Thoughts, at least when they reflect upon their Thoughts.

CHAP. II.

Of the Objects of Ideas.

WHatever we conceive is represented to our Minds, either as a *Thing*, or a *manner* of a *Thing*, or as a *Thing modified*.

I call that a *Thing* which is conceived to consist of it self, and as the Subject of all those *Things* that are comprehended in it, which by another name is called *Substance*.

The *Manner*, *Attribute* or *Quality* of a *Thing* I call that, which when it is conceived to be comprehended in the *Substance*, and not to be able to subsist without it, determines it to exist after a certain manner, and gives it a certain denomination.

A *Thing modified*, I call a *Substance*, as it is determined by a certain mode or manner.

All which things will be apprehended more clearly by Examples.

When I consider a *Body*, the *Idea* of it represents to me a *Thing* or *Substance*, because I consider it as a thing subsisting by it self, and which has need of no other to exist.

Idea But when I consider this Body to be *round*, I consider a *round Body*, and this *Idea* represents to me the *Thing modified*.

The names which are used to express these things are called Substantives, or absolute, as *the Earth, the Sun, the Soul, God*.

Those also that primarily and directly signify the *Modes* or *Manners*, because they have some Correspondence with Substantives, are called Substantives and Absolutes, as *Hardness, Heat, Justice, Prudence, &c.*

Such names as signify the *Things as Modified*, marking out primarily and directly the *Substance*, though more confusedly, and indirectly the *Manner*, though more distinctly are called *Adjectives* and *Connotatives*, as *Round, Hard, Just, Prudent*.

But here we are to observe, that the Mind being accustomed to know most things as *Modified* (in regard she attains not the knowledge of them but only by accident, or by those qualities that strike the Senses) often divides one Essence of a *Substance* into two *Ideas*, of which the one she takes for the *Subject*, the other for the *Mode*. Thus although there be nothing in God, which is not God himself, yet we apprehend him as an *Infinite Being*; and with us *Infinite* is the Attribute of God, as *Being* the Subject of the Attribute. Thus also we consider Man as the Subject of *Humanity*, or having *Humanity*, and consequently as a *Thing Modified*.

And then the Essential Attribute, which is the Thing most it self, is apprehended by the *Manner*

of the *Manner*, because it is as it were inherent in the Subject. And this is called the Substantive abstracted, as *Humanity, Corporeity, Reason*.

Nevertheless, it is of great Importance to distinguish that which is truly the Mode from that which only seems to be so, for the Confounding of *Manners* with Substances, and Substances with *Manners* is the chief ground of all our Errors. Therefore the Nature of the true Mode is such, that the Substance of which it is the *Manner*, may be clearly and distinctly conceiv'd without it; but the manner cannot be alternately clearly conceiv'd; unless the Relation which it has to its Substance be readily apprehended, without which it cannot naturally exist.

Not but that we may apprehend the *Manner* without such an exact and distinct consideration of the Subject. But that which demonstrates that the Relation of the *Manner* to the Subject, is contained at least, confusedly in its Conception; because we cannot deprive the *Manner* of that Relation, but that we must destroy the *Idea* of it at the same Time. Whereas when we conceive two Substances, we may deny one thing of the other; yet never destroy the *Ideas* of either.

For Example, I may deny *Prudence*, without considering the Man who is prudent; but I cannot conceive *Prudence*, and at the same time deny the Relation which it has to *Man*, or any other intelligible Nature capable of *Prudence*.

Contrariwise, when I consider what appertains to an extended Substance, which is called a Body, *Extension, Figure, Mobility, Divisibility*, and on the other side whatever belongs to the Mind, as *Thinking, Doubting, Memory, Will, Discourse*, I may deny all that of the *Extended Substance*, which I conceive belongs to the *Thinking Substance*, and yet distinctly apprehend the *Extended Substance*, and all the Adjuncts that belong to it. And I may reciprocally deny of the *Thinking Substance*, whatever I apprehend of the *Extended Substance*, without considering what I have conceived of the *Thinking Substance*. Which also proves, That *Thinking* is not the *Manner* of the *Extended Substance*, because that *Extension* with all the rest of the Attributes belonging to *Extended Substance* may be deny'd of *Thought*, and yet a Man may rightly apprehend of *Thinking*.

It may be here farther observed, That there are some of these *Modes* or *Manners*, which may be call'd *Intrinsic*; because they are apprehended to be in the substance, as *round* or *square*; others may be said to be *Extrinsic*; because they are taken from something which is not inherent in the Substances; as *loved, seen, desired*; but these things depend upon the Actions of others. And these sorts of *Modes* or *Manners*, are called in the Schools, *Extrinsical Denominations*. But if these *Modes* are taken according to the Manner whereby Things are apprehended, they are called *Second Intentions*. Thus *to be Subjected, to be Predicated* are *Second Intentions*, because they are the *Manners* whereby the Things themselves

are apprehended, as they are in the Understanding, conjoining two *Ideas*, affirming one to be the other.

It is farther to be observ'd, that there are other *Modes* which we may call *Substantials*, because they represent to us true *Substances* applied to other *Substances* like to *Manners*; of which sort are *Cloaths Arm'd*, &c.

There are others which we may call simply *Real*, and these are the true *Manners*, which are not *Substances*, but *Manners of Substance*.

Lastly, There are others which we may call *Negatives*, because they represent the Substance to us with a Denial of some real or substantial *Manner*.

Now if the Objects represented by these *Ideas* be either *Substances* or *Manners*, are really such as they are represented to us, we call them true. If not, they are false *Ideas*, in such a manner as they may be. And these are they which in the Schools are call'd *Entia Rationes*, *Entities of Reason*, which happen for the most part when the Mind conjoins two *Ideas* real in themselves, but distinct; thus the *Idea* of a *Golden Mountain* is an *Entity of Reason*, compounded of two *Ideas* of a *Mountain* and *Gold*, which the Mind represents as conjoin'd, when really they are not so.

CHAP. III.

Of Aristotle's Ten Predicaments.

TO this Head of the Objects of *Ideas*, the Ten Predicaments of *Aristotle* may be reduc'd; as being but several Classes, under which that Philosopher comprehended all the Objects of our Thoughts; all comprehending all Substances under the First, and to Accidents under the other Nine.

The first *Substance*, which is either Spiritual or Corporeal; the second *Quantity*, which is either *Discrete*, when the Parts are divided as Numbers.

Or *Continued*, when the Parts are conjoined, and then either successive, as *Time* and *Notion*; or Permanent, which by another Name is called *Space*, which Extension in Length, Breadth and Profundity; joint length alone making Lines, Length and Breadth making surface, and all-together causing *Solidity*.

Third *Quality*, of which *Aristotle* makes Four Kinds.

The first comprehends *Habitude*, a disposition of Mind or Body, acquir'd by reiterated Acts, as the Sciences, Virtue, Vice, Excellency in Painting, Writing, Dancing.

The Second *Natural Ability*; such as are the Faculties of the Soul or Body, the Understanding, the Will, the Memory, the Five Senses, Swiftness of Foot.

The Third, *Sensible Qualities*, as Hardness, Softness, Ponderosity, Hot, Cold, Colours, Sounds, Odors, and several sorts of Relishes.

The Fourth, *Form and Figure*, which is the intrinsic Determination of Quantity, as *Round, Square, Spherical, Cubical*.

Fourthly, Relation of one Thing to another, as of *Father to Son, Master to Servant, King to Subject, of Power to the Object, of Sight to the Thing visible* to which may be added all things denoting Comparison; as *like, equal, bigger, less*.

Fifth, *Action*, either considered in its self; as *to walk, leap, to know, to love*; or externally, as *to strike, to saw, to break, to manifest, to bear*.

Sixth, *Suffering*; as *to be stricken, broken, to be manifested, beaten*.

Seventh, *where*; as when we answer to Questions about Place; *He is at Rome, at Paris, in the Study, or a Bed*.

Eighth, When we answer to Questions about Time, as *when did he live? a hundred Years ago: What was this done? Yesterday*.

Ninth, *Situation*; as *Sitting, Standing, Lying, Behind, Before, upon the Right-hand, on the Left*.

The Tenth, the manner of having, as to have any thing about a Man for *Cloathing, Ornament, Armour*; or *to be Cloath'd, Adorn'd, Arm'd, to wear Breaches, &c.*

These are *Aristotle's Ten Predicaments* formed for the Birth of so many Mysteries, though, to say truth, of very little use, and so far from rectifying

ness, Judgment, which is the Scope of Logic, that
Some frequently do much mischief; and that for two
uses which it will be worth while to display in
is the place.

The first is, That these Predicaments are things
look'd upon as Things grounded upon Reason and
another, whereas they are Things meerly Arbitrary,
Sub which have no ground but the Imagination of
Man, that has no Authority to prescribe Laws to
Coners, who have as much Right as he, to dispose
the same, or any other Order, the Objects of
; thinking, according to the Rules of Philosophy,
which every one Embraces. In a word, the follow-
g Distic, contains whatever falls under our Con-
sideration, according to the new Philosophy:

*Mens, Mensura, quies, motus, Positura, Figura,
cum materia Cunctarum Exordia rerum.*

For the Followers of this Philosophy believe they
have drain'd all Nature out of these seven Heads.

1. *Mens*, or the *Thinking Substance*. 2. *Matter*,
or the Extended Substance. 3. *Measure* or the Big-
ness or Smalness of every part of the Matter. 4.
Position, or Situation one in respect of another. 5.
Figure. 6. Their Motion. 7. Their *Rest*, or slower
Motion.

The other Reason why we think this Series of
Predicaments to be pernicious is this, because it oc-
casions Men to satisfy themselves with the outward
Rind of Words, instead of Profiting by the whole-
som Fruit, and to believe they know all things, so
they

they are able to say by rote certain Names of contrary Signification, which yet imprint no clear distinct Ideas, as we shall afterwards demonstrate.

Here something might be said of the Attitude of the Lullists, Goodness, Patience, Magnanimity and the rest. But it is such a ridiculous Invention to think that they are able to give a Reason of things by the application of a few Metaphysical Words, that it is not worth refuting.

And therefore a very Modern Author has affirmed with great Reason, *That the Rules of Aristotle's Logic are serviceable, not so much to discover what we are ignorant of, but to explain to others what we know already : But that Lully taught us to prattle fluently and without Judgment, of that of which we know nothing at all.* And therefore Ignorance is to be preferred far before this false Knowledge ; for as Austin judiciously observes in his Book of the utility of Belief, such a disposition of the Mind is highly to be blam'd for two Reasons : One, *For that who is perswaded that he understands the Truth, renders himself incapable of Learning any more :* And Secondly, *because such a Presumption and Rashness is a sign of an ill-govern'd and ill-qualified Mind.* Opinaris, saith he, *Duas ob res turpissimum est, quod dicere non potest, qui sibi jam se scire persuasit, & per se ipsa temeritas non bene affecti Animi signum est :* For the word *Opinari*, in the purity of the Latin Tongue signifies a disposition of Mind, that consents too lightly to uncertain things, and so believes that he knows what he does not understand, and therefore

the Philosophers maintain'd, *Sapientem nihil O-*
ari ; and *Cicero* blaming himself for that Defect,
 s, that he was *Magnus Opinator*.

CHAP. IV.

Of the Composition and Simplicity of Ideas,
wherein is discoursed the manner of know-
ing by Abstraction or Precision.

WE have affirm'd by the by, in the second
 Chapter ; that we may apprehend the
 Mode or Form without considering distinctly the
 substance of which it is the *Mode*, from whence we
 take an occasion to explain, what is *Abstraction of*
the Intellect.

The narrow Limits to which our Souls are con-
 n'd, are the Reason that we cannot perfectly ap-
 prehend things, if a little compounded, without
 considering them in Parts, and according to the
 several Shapes that they may receive. Which is
 that, which we generally call knowing by *Ab-*
straction.

But in regard that things are variously com-
 pounded, some of Parts really distinct, which we
 call *Integral*, as the *Body of Man*, *Number*, &c. It is
 easie thence to understand, that the Mind may con-
 sider one Part and not another, because these Parts
 are really distinguish'd: But this is not that which
 we call *Abstraction*.

Now

Now it will be more advantageous to consider these Parts separately, to a distinct Knowledge which we can never else attain. For Example, the *Body of Man* can be no otherwise known, than by dividing it into all its Parts, as well similar as dissimilar, and by setting several Names upon every one. *Arithmetic* also stands upon this Foundation. For we have no need of Art to Measure or Count the little Numbers, for the Mind is able to receive them entire. So that the whole Art consists in number, and bring separately those Parts of Number, which being whole we cannot reckon. For as Capacious the Mind is, it is impossible for it to multiply Numbers consisting of eight or nine Figures, without a separate Multiplication of each Figure by itself.

Secondly, we know by Parts, when we apply our selves to one manner, not considering the Substance; or to two separately, which are not however inherent in one and the same Subject. This is done by the Geometricians, who make a Body extended in Length, Breadth and Profundity, the Object of Geometry. But for the more accurate Knowledge of this, they first apply themselves to the Consideration of one only Dimension. Then they consider two Dimensions, *Length* and *Breadth*, which they call a *Superficies*; and lastly all the three Dimensions together, which they call *solid Bodies*.

Hence it appears how vain and ridiculous the *Subtleties* of the *Skeptics* are, who endeavour to call in question the certainty of *Geometry*, because it supposes

supposes Lines and Superficies that never were ; it does not suppose Lines without Latitude, nor Superficies without Profundity ; but it supposes, that Longitude may be consider'd without the consideration of Latitude ; which is a thing beyond Controversie, for in measuring the distance between City and City, we only measure the Length of the way, not troubling our selves about the breadth.

Now by how many the more *Manners* we divide things, so much the more capable we become of accurately understanding them. Thus we see in Motion, when the determination to what place is not rightly distinguish'd, as well from the Motion by the parts of the Determination, so long nothing can clearly be concluded concerning the causes of Reflection and Distinction, which is done by the help of this Distinction, as may be seen in the Second Chapter of *Des Cartes's Optics*.

Thirdly, we know by *Abstraction*, when the thing has several Attributes, but we only consider one, setting all the rest aside. For Example, I consider, that I think, and by Consequence that I am he who thinks. Now in this *Idea* of my self-thinking, I can only consider the Thing-Thinking, not considering that I am the Thing-Thinking, though in Me, My self, and the Thing-Thinking are one and the same ; and so the *Idea* which I have conceived of the Person Thinking, will not only represent me my self, but all other Persons that think. In the same manner, if I consider an Equilateral Triangle, as it is described

scribed in such a Paper, with all its other determining Circumstances; that *Idea* will only represent this Triangle to me. But if I call off Thoughts from the consideration of these particular Accidents, and apply my self to the consideration of this Figure, as consisting of three Lines; *Idea* thus form'd will hence more clearly express the Equality of the Lines; and thence I become more apt and Skilful to make a Representation of all other Triangles of the same Nature. If I go to go farther, and not to stop at the Contemplation of the Equality of Lines, but am to consider it as a figure consisting of three right Lines, *Idea* will express all the sorts of Triangles. Lastly, if omitting the number of the Lines, I conceive a Superficies bounded with Right-Lines, I shall form an *Idea* of Figures consisting of Right Lines; and thus by degrees I may ascend to extension it self. For in these Abstractions, the inferior degree contains the superior, together with some conjoin'd Determination. Thus *I think* contains *Thing-thinking*: Thus an equilateral Triangle contains a Triangle, and thus a Triangle comprehends a Right-lin'd Figure, and the upper represents many things so much the more clearly, by how much the less it is determin'd.

Lastly, It is manifest, that by the benefit of *Extraction*, *Common Ideas* are produc'd out of *Singular* and out of *Common* ones still more *Common*. By which we are admonish'd to proceed to what is to be said concerning the *Universality* and *Particularity* of *Ideas*.

CHAP. V.

Of the Universality, Particularity and Singularity of Ideas.

Although what ever exists be *Singular*, nevertheless, by the help of *Abstractions*, we have several sorts of *Ideas*, of which some will express *Singulars*; and such is the *Idea* which every Man has of himself; others will express many things together, as when a Man thinks a *Triangle*, considering nothing else but that it is a *Figure* containing three *Lines*, and as many *Angles*; which *Idea* form'd, may serve for the apprehension of all *Right Triangles*.

Ideas representing one thing, are call'd *Singular* or *Individual*, and their *Objects* are called *Individuals*; but they that represent several things, are call'd *Universal*, *Common* or *General*.

The *Names* that denote the first; are *Proper Names*, as *Socrates*, *Rome*, *Bucephalus*. These that signify the latter *Common* and *Appellatives*, as, a *Man*, a *City*, a *Horse*. And as well *Universal Ideas* *Common Names* may be called *Generical Terms*.

Note that there are two sorts of *Generical Terms*, one of those that are called *Univocals*, to which the *Universal Ideas* are so tied, that the same *Name* may agree with several *Things* according to the same sound, and the same *Notion* that is annexed to the

the Sound ; of which sort are, a *Man*, a *Cal*
Horse.

The other is of those that are called *Equivocal* the Sound of which is the same annexed to different *Ideas*, so that the same Sound or Word agree to several Things, but not according to the same, but various *Ideas* which Custom has subjected to the Word. Thus *Canon* signifies a great *C* and Ecclesiastical Decree, and a Rule of Art; these Significations belong all to different *Ideas*.

These *Universal Equivocals* are of two sorts. various *Ideas*, subjected to one Sound, have either no Relation one with another, as in the *W* *Canon* ; or else they have some Relation, as *w* *B* the Name primarily signifies one *Idea* ; otherwise than as they relate to the first *Idea*, the *Cause*, *Effect* or *Sign*, and these *Equivocals* called *Analogous* : Thus *Animals*, the *Air* and *D* are said to be *Healthy*.

Now the *Idea* first join'd to the Word, denotes *Health*, which is proper to *Animals* ; but others are added, approaching near to the primary *Idea* as being the *Cause* of *Health* ; and therefore we call the *Air Healthy*, and *Diet Healthy*, because they both contribute to the preservation of *Health*.

Nevertheless, when we hear speak only of *Universal Terms*, we understand *Univocals* only, with the *Universal Ideas* annex'd.

But among all these *Universal Ideas*, there are two which it highly concerns us rightly to distinguish that is to say, *Comprehension* and *Extension*.

a *Call the Comprehension of an Idea* all those Attributes that are contain'd within it ; so that none may be taken away, but the *Idea* must be destroy'd. Thus the *Comprehension* of the *Idea* of a Triangle, includes *Extension*, *Figure*, *Three Lines*, *Three Angles*, and the *Equality* of those Angles with *Right Angles*.

at *Call Extension* the *Subjects* with which the *Idea* agrees, which are also called the *Inferiors* of the *Universal Terms*, which being related to those, carry the name of *Superior*. Thus the *Generical Idea* of a Triangle extends its self to all the several *Species* of Triangles.

But though the *Generical Idea* confusedly extends its self to all the inferior *Subjects*, nevertheless between the Attributes which it comprehends, and the *Subjects* to which it is extended, the difference arises from hence, that we cannot despoil the *Idea* of any of its Attributes without destroying it, as hath been said ; whereas we may restrain the *Extension* of the *Idea*, by applying it to some of the *Subjects*, yet never injure the *Idea*.

Now the *Restriction* of the *Generical Idea* may happen two ways.

First, by the Addition of an *Idea* distinct and determin'd. Thus if I add to the *Generical Idea* of a Triangle, that it has a *Right Angle*, I restrain the *Generical Idea* of Triangles to a certain *Species* of a Triangle, which is therefore called a *Rectangle Triangle*.

Secondly,

Secondly, By the Addition of an *Idea* common and undetermin'd; as if a Man should say, *some angle*. In which case the *Term* is made particular because that now it extends it self only to a part of the *Subjects*, which before comprehended all, yet that part to which it is restrain'd is not determin'd.

CHAP. VI.

Of the Five Universal Ideas; Genus, Species, Difference, Proper and Accident.

WHAT has been said in the former Chapters opens us a way for the explanation, in few words, of those *Universals* which are vulgarly made use of in the Schools.

For when the *Generical Idea* represents to us the Objects as *Things*, and that in *Substantives* and absolute *Terms*, it is call'd either *Genus* or *Species*.

Of Genus.

Genus is call'd an *Idea*, as being so common, that it extends it self also to other *Universal Ideas*. Thus a square Figure of four sides is a *Genus*, in respect of a *Parallelogram* or a *Trapezium*. And in like manner Substance is the same in respect of Substances.

con-extended, which is a Body ; and the *Thinking Substance*, which is a Spirit.

Of Species.

But the common *Idea*, which is another more common and General, is call'd *Species*. Thus a *Parallelogram* and *Trapezium*, are *Species* of a square figure: And thus Body and Spirit are *Species* of substance.

But one and the same *Idea* may be call'd a *Genus*, and be referred to other *Ideas* to which it extends itself: But the *Species*, if it relates to an *Idea* more general, to which it is subservient. Thus *Body* is a *Genus* in respect of a *Body* animate or inanimate; but a *Species*, in respect of *Substance*. Thus a *Square* is a *Genus* in respect of a *Parallelogram*, but a *Species* in respect of a *Figure* indeterminately taken.

But there is another Notion of *Species*, which does not fall but upon those *Ideas*, which cannot be call'd *Genus's*; as when any *Idea* has only under it individuals and singulars. Thus a *Circle* has only under it singular *Circles*, which yet are all of the same *Species*, and these *Species* are call'd the *Lower-Species*.

There is also a *Genus* which cannot be a *Species*, which is call'd the *Supream* of all *Genus's*, whether be *Ens* or *Substance*. Nor is it much material to know it, as relating rather to *Metaphysics* than *Logic*.

I have

I have call'd those *Ideas* which represent their Objects as *Things*, either *Genus's* or *Species*. However it is not absolutely necessary that Objects should be either *Things* or *Substances*; since that they be apprehended to be like *Things*. For though they be *Manners*, they may be represented without any Relation to their *Substances*, only be referr'd to other *Ideas* of *Manners*, more or less General. Thus *Figure*, which is a *Manner* of a figur'd *Body* is a *Genus*, in respect of *Figures* consisting of streight or crooked Lines.

On the contrary, *Ideas* that represent to us Objects as *Things* modified, and that in *adjective* or *connative* Terms, if they be compar'd with *Substances* which these *Connative* Terms signifie but confusedly, though directly, whether these *Connative* Terms denote *Essential Attributes* (which in themselves are nothing else but the *Things* themselves) or *Manners*, yet are they not call'd either *Genus's* or *Species*, but either *Differences*, or *Propers*, or *Accidents*.

They are called *Differences* when the Object of the *Ideas* is an *Essential Attribute*, by which *Species* is distinguish'd from another *Species* as *Extended*, *Thinking*, *Rational*.

They are called *Propers*, when the Object belongs to the Essence of the *Thing*, though not the first thing that is consider'd in it, but depending upon the first; as *Divisible*, *Immortal*, *Docible*.

Common Accidents are so call'd, when their Objects are *true Manners*, which cannot be separated by the Understanding, from the *Thing* whose *Accidents*

present they are, without destroying the Idea of
or being in our Minds; as *Round, Hard, Just,*
7 that.

like **Of Difference.**

whereas *Genus* has under it two *Species*; necessarily the *Idea*s of both include something of which *I* myself, which is not comprehended in the *Idea* respect to *Genus*. For if they had nothing different from *Genus*, they would be *Genus*'s themselves; and as the *Genus* is predicated of both the *Species*'s, so the *Species*'s are predicated one of another. The *Essential Attribute* to the *Species* not being found in the *Genus*, is called the *Difference* of *Genus* and is the *Universal Idea* which we have of it; because it can solely and only represent to us this *Essence*, where-ever it be found; that is, in all *Species* of that *Genus*.

For Example, Body and Spirit, are two *Species* of Substance: Therefore there must be something more in the *Ideas* of Body and Spirit, than in the *Idea* of Substance. Now that which we first see in Body is *Extension*; what we see first in Spirit is *Thought*. Hence the *Difference* of Body will be *Extension*; of Spirit, *Cogitation*. That is Body will be a Substance *extended*; Spirit, a *Thinking* Substance.

Hence it follows, That Difference is doubly required, either to the *Genus*, which it divides, or to the *Species* which it Constitutes; and farther, that

it is the primary part of that which in the *Comprehension* of the *Idea* is included in the *Species*. Hence every *Species* may be express'd by one word, as *Mind*, *Body*, or by two conjoyn'tly, that is *Genus* and *Species*, which is also call'd a *Definition* as *Substance* extended, a *Thinking Substance*.

Secondly *Difference*, because it constitutes the *Species*, and *Differences* it from other *Species*'s, ought to have the same extent with *Species*; and for this reason *Difference* and *Species* ought to be predicated one of another; as thus, *What ever thinks is a Spirit*, *every Spirit thinks*.

But oftentimes it happens, that in several things there is no Attribute that offers it self which agrees so fully with the whole *Species* as to agree only with that *Species* and no other. In this case the way is to join together several Attributes, and this *Assemblage* not being to be found in any other *Species*, constitutes the difference. Thus the *Platonists* asserting that the *Demons* were no less rational Animals, than Men, would not admit *Rational* to be the Reciprocal difference of Man, but added another to it, that is to say, *Mortal*; which is not the Reciprocal difference of Man, as being common to Beasts: yet being both joyn'd together, they relate to Man. And thus we frame to our self *Ideas* of the most part of Beasts.

Lastly, It is to be observed, that it is not always requir'd that both the *Differences* dividing a *Genus*, should be Positive: it suffices that only one be such. Thus two Men are sufficiently distinguished

sh'd, if he be said to follow an Employment which
other does not; though he that wants the Em-
ployment has no less positively than what the other

Thus Man is generally distinguish'd from Brutes;
Man is a *Creature endued with a Soul*; but Brutes
are *mere Animals*. Yet the *Generical Idea* of Brutes
contains nothing in it *positively*, that is not found
in Men; only we add to that *Idea*, a denial of that
which is in Men; that is the *Soul*.
So that the difference between the *Idea* of an *Animal*,
and the *Idea* of a Brute consists in this, that the *Idea*
of an *Animal* neither excludes nor includes Cogita-
tion within its *Comprehension*, whereas neverthe-
less it is contain'd in its *Extension*. On the other
side, the *Idea* of a Brute excludes Cogitation out of
its *Comprehension*, and therefore cannot sort with
Man.

Of Propriety.

The *Difference* being found out which constitutes
the *Species*, that is, the primary essential Attribute
distinguishing it from any other *Species*, if enquir-
ing farther into the nature of it we find another
Attribute depending upon the Principle by necessa-
ry Connexion, and Consequently altogether agree-
ing with this only *Species*, such an Attribute we call
Propriety: and because it agrees with all the Inferi-
ors of the same *Species* wherever it be, we adopt
it into the number of Universals, and make a
Fourth.

For Example, To have a *Right Angle* essential Difference of a *Rectangle Triangle*. because it necessarily follows, that *Angles Right*, the Square of the *Hypotenuse* is equal to the Squares of the other sides, the Equality of Squares is taken for the Propriety of a *Rectangle Triangle*, which agrees with all and only *Rectangle Triangles*.

Nevertheless, some will have this name of *Rectangle Triangle* to be of a larger Extent, and hence arise four Species of it.

The first is that which we have already plain'd, and which agrees with *all solely*, and *always*. Thus it is the Propriety of all Circles, and all Circles, and always to have all Lines drawn from the Center to the Circumference equal.

The second agrees with *All*, but not *only*. Thus it agrees with an extended Body to be divisible, because all extended Bodies may be divided, although *Duration*, *Number* and *Force* may also be divided.

The third may agree with *one only*, but not with *all*. Thus it is only proper to a Man to be a Physician or a Philosopher; though all Men are neither Physicians nor Philosophers.

The fourth may agree with *all and only*, but not *always*.

An Example of this we have in Grey-hair in old Men, which is proper *solely* and to *all Men*, but not *always*; that is, not till Men arrive to Old age.

Of Accidents.

We have already declared in the Second Chap-
that a Form or Manner is that which cannot
essentially subsist but by the Substance, and that it is
join'd to the Substance with any necessary Con-
nion; so that the thing may be exactly under-
stood, though the Form or Manner be not con-
sidered. Thus we exactly understand a Man, not
considering whether he be Prudent or no; but Pru-
dence cannot be conceived unless we apprehend the
Man, or some Intelligence being capable of Pru-

But when we couple the confus'd and indeter-
minate Idea of Substance with the Distinct Idea of
Form or Manner, this Idea may represent all
things, wherein this manner is included.

Thus the Idea of a Prudent Man will represent
prudent Men; the Idea of Round will represent
Round Bodies. And these Ideas being thus ex-
press'd by Connotative Terms, are those things which
make the first Universal, called an Accident; because
it does not essentially belong to the Thing to which
it is attributed; for if it did, it would be either
Essence or Propriety.

But here it is also to be observed, as we have
stated before, that when two Substances are con-
join'd together, another may be conceived as the
Form or Manner of the other. Thus a Man cou-
p'd may be considered as something compounded of a

Man and Cloaths. But to be *Cloathed*, in respect that Man is the manner of his appearing under which that Man is conceived, though Garments are Substances; And thus, to be will belong to the *first Universal*.

And so much for the Universals so comprised up in the Schools; for 'tis little matter to know that there are *Genus, Species, Difference, propriety and Accident*, but to know the true Genus, the true Species's, of Genus's, their Proprieties, Accidents, that's the main thing requir'd; for attaining of which knowledge we make no question to give some light in the following Chapter, after we have spoken something before-hand of *Complex'd Terms*.

CHAP. VII.

Of the Complex'd Terms, their Universal and Particularity.

Sometimes to some certain Term we join other Terms, from which arises in our Minds a *mental Idea*, of which we may affirm or deny those things which cannot either be deny'd or affirm'd of single Terms separately taken; from whence proceed the *Complex'd Terms*; as a *Prudent Man*, a *Spare Body*, *Alexander the Son of Phillip*.

These Additions are sometimes made by Pronouns Relative, as *the Body which is Transparent, Alexander who is the Son of Phillip; the Pope who is Christ.*

And indeed it may be affirm'd that although Pronouns are not always express'd, yet they are always to be understood, because that in all the Proposition, they may be express'd. For *Transparent Body, and a Body that is Transparent,* are equivalent.

But that which is chiefly to be observ'd in *Composed Terms*, is, that there are two kinds of Additions, of which the one may be called *Explicative*, and the others *Determinative*.

The *Explicative* in positive words, explains that which before lay hid either in the *Comprehension* of the *Idea* of the first Term, or at least which agrees with it as an *Accident*, so that it agrees with it generally and according to its entire Extension. As when I say, *A Man who is a Creature endued with Reason; or, a Man who naturally desires Happiness; or, a Man who is Mortal.* For what is here added is only *Explicative*, not changing any thing in the whole *Idea*, which is annexed to the word *Man*; nor restraining it to signify only certain Men, but only it denotes those things more clearly which are common to all Mankind.

Of this Nature are those *Additions* which are apply'd to Names, distinctly denoting *Individuals*, as when we say, *London is the largest City in Europe; Julius Cæsar was the greatest Captain in the World;*

Aristotle the Prince of Philosophers ; William the Third King of England ; for here the single is so pronounced, loose nothing of their Extension as being first determined as much as they could.

Determinative is that, which being added restrains the signification of the General Term, so that it is not now accepted in its full Extension, but comprehends only a part of it ; as, *Transparent Bodies, Wise Men, a Rational Creature*. These Propositions are not simply *Explicative* but *Determinative* because they maim and curtail the Extension of the first Term ; for the Name of *Body* here signifies only a part of the *Body of Man*, as a part of *Man* of a *Creature*, as part of the *Creatures*.

But it is the Nature of these Additions sometimes to create a *Singular* out of a *Common* Term, when they contain Conditions *Individuant* : As when I say *the King now Reigning*, the Common Name of *King* is determin'd to the single and only Person of William III.

There are also two other kinds of *Complex Terms* ; of which the first is *Complexed* in Word the other in Sense only.

Of the first kind are those that have the Addition express'd, as in the Examples hitherto mentioned.

Of the other kind are they, in which one of the Terms is only pronounced, the other understood, as when we say, *the King*. This Term is *Complexed* in Sense ; because when we pronounce the word, the *Idea* of the common Name does not present it self to our minds alone, but, as adjoined

William III. to it, the *Idea* of William III. who now reigns in England. The *infinite* number of *Terms* is meant those which being thus *complexed*, occur in daily use, as in every Family, *Master*, implying such a Relation. Some *Terms* are also *Complexed* as well in Words as Sense; but after various manners. As the Prince of *Philosophers* is *complexed* in words, because the name of *Prince* is determin'd by the word *Philosopher*; but in respect to *Aristotle*, to whom School men are so addicted to give that Title, is *complexed* in Sense, when the *Idea* of *Aristotle* is only obvious to the mind, nor being express'd by any Sound that denotes the Person.

All *Adjectives* or *Connotatives* are either Parts of *Complexed Terms*, though they are clapt together with their Substances, or *complexed* in Sense, when *Substantives* are understood. Because, as we have said in the Second Chapter, these *Connotative Terms* denote the Subject directly indeed, but more confusedly; the *Mode* or *Form* indirectly; but more distinctly.

And therefore the *Idea* of the Subject is very general and very confused, representing sometimes a *Substance*, sometimes a *Body*, which for the most part is determined by a distinct Form of the *Idea*. Thus *White* signifies a Thing that has *Whiteness*. And hence the confused *Idea* of the Thing, is determined to signify those things only that are *White*.

However in this Matter, it is chiefly to be observed, that there are some *Complexed Terms*, which although they be only determined to one only

Individual, nevertheless retain an *Equivocal Universality*, which may be called an *Universality of Reason*. For when Men agree that one only Thing, is signified by such a Term, but dispute what that Thing really is, it happens that this Term is applied by some to signify this Thing, by others, another Thing. Hence it is requisite that such a Term be farther determined, either by the variety of Circumstances, or the Series of Discourse, that the signification of the Term may be made precisely apparent.

Thus *true Religion* signifies one sole Religion which is really the *Church of England*; but because all People and every Heretic think their own Religion to be truest, these Terms are highly *Equivocal*, by *Equivocation of Error*. For if an Historian should write that his Prince was most addicted to the *true Religion*, it cannot be said what he meant unless it be known what Religion the Historian profess'd. For if he were a *Church of England Man*, it is understood of a *Church of England Prince*, or of a *Mahumetan*, if the Historian were an *Arabian Mahumetan*; and so of a *Roman Catholic Prince*, if the Author were a *Roman Catholic*.

Complexed Terms, wherein there is *Equivocation of Error*, chiefly comprehend those Qualities of which the Sense is no Judge, but the Mind. For Men are prone to differ in their Opinion, concerning such Things.

For Example, should we affirm that no Soldier were lifted by *Marius*, but such as were six foot high; this *Complexed Term*, *Soldier, six foot high*,

not subject to *Equivocation* of Error, when it is
 for Soldiers to be measured, that we may
 know whether they be six foot high or no. But
 if it been decreed, that none should be lifted but
 such as were *stout*, this Term had been much more
 liable to *Equivocation*, when as it might be attribu-
 ed to such Soldiers that look'd like stout Men, but
 indeed but meer Cowards.

This *Equivocation* of Error is often found in Com-
 plexed Terms, *The Chiefest of the Parisian Geometrici-
 ans; the most Learned, the Wickedest, the Richest of
 Men.* For though these Terms are divided by In-
 dividuant Conditions, seeing that one Person might
 be the chiefest of the *Parisian Geometricians*; never-
 theless, this Term might be ascribed to several,
 though proper only to one; in regard it is an easie
 thing for Men to vary in their Judgments concern-
 ing this matter; so that every one shall give this
 Title to him, whom he thinks to be the best and
 most excellent Geometrician.

These Forms of Speech also, *The Sense of the Au-
 thor, what the Author declares upon this Subject,* are of
 the Number of these *Equivocates*; especially if the
 Author be so obscure, that there be any dispute
 about his Sense. And thus we find continual Al-
 tercations concerning *Aristotle's* Opinion of Philo-
 sophers, while every one endeavours, to draw him
 to their Party. For although *Aristotle* had but one
 Sense concerning one thing; yet because he is va-
 riously understood by several, these words, the *Sense
 of Aristotle*, are the *Equivocations* of Error. For

every one pronounces that to be the Judgment of *Aristotle*, which he is perswaded that *Aristotle* made, and so if several believe, That *Aristotle* had a different Opinion of the same thing; these Terms in the Sence of *Aristotle* in such a matter, though significant in themselves, can never be applied to many, it is to say, to all those things, that *Aristotle* is said to have written upon such a Subject; they shall signifie with every one, what every one is perswaded the Philosopher thought.

But that we may the better understand, what lies this Equivocation of Error, it is to be observed that the Terms of it are *Connotative*; either expressly or in Sence. Now, as I have said, in *Connotative* Terms may be considered as well the Subject, which is directly or confusedly express'd, as the *Form* or *Mode* which is directly and indistinctly signified.

Thus *White* confusedly denotes a Body, distinctly *Whiteness*; thus the Sence of *Aristotle*, confusedly signifies some Sentence, Thought or Doctrine; distinctly, the Relation of that Doctrine to *Aristotle*, to whom it is attributed.

However the *Equivocation* which is found in the Terms, does not properly arise from the *Form* or *Mode*, which being distinct, can never vary; nor from the Subject confusedly consider'd, as not being freed from that confusion. For Example the words: - *Prince of Philosophers*, cannot be *Equivocated* in regard the *Idea* of *Prince of Philosophers* can be distinctly apply'd to no *Individual*. But *Equivocation*

consists only in This, that the Mind instead of confus'd Subject substitutes another which is distinct and determinate, to which *Form* or *Manner* apply'd. But in regard Men dispute about this Matter, they may ascribe the Title of Prince or King to several Persons, and signalize them afterwards with what additional word they think most convenient. Thus formerly *Plato* was called the Prince of Philosophers; which Title is now conferred on *Aristotle*. Thus the words, *True Religion*, having any distinct, but a confus'd *Idea* of any Religion, are no *Equivocates*, because they denote nothing but that Religion which is absolutely *True*. When the Mind has annexed the *Idea* of *True Religion* to the distinct *Idea* of some particular *Worship* distinctly known, they become egregious *Equivocates*, and signify that *Worship* with every one, which they account the *True Religion*. The same is the Condition of these Words, *That such such a Philosopher held of such a Matter*. For while they abide in their general *Idea*, the general *Idea* simply and generally will signify the Doctrine delivered by such a Philosopher concerning such a Matter; as the Doctrine of *Aristotle* concerning the Nature of the Soul. Whereas the same words, *That which, &c.* that is to say, this Doctrine, while it is under a confus'd *Idea* apply'd to no distinct *Idea*, is not capable of *Equivocation*. But when the Mind, instead of that Doctrine confusedly conceiv'd, substitutes a distinct Doctrine, and a distinct Subject; then according to the variety of distinct *Ideas*, that same

same *That which, &c.* may be liable to Equivocation. Thus the Doctrine of *Aristotle* touching the nature of the Soul, is an Equivocate with *Pompey*, who asserts that *Aristotle* believed the Soul to be Mortal, and with several others of his Interpreters, who on the other side affirm that *Aristotle* taught the Immortality of the Soul, as well as *Plato* & *Socrates*. Hence it is, that words of this Nature most frequently signify the thing with which the Form indirectly express'd cannot agree. Suppose for Examples sake, that *Philip* was not the Father of *Alexander*, as *Alexander* himself endeavour to make out; these words, the Son of *Philip*, denote Generality, any person begot by *Philip*, erroneously spoken of *Alexander*, denote the person that is really the Son of *Philip*. In like manner the words, the Sense of Scripture alledged by a Quaker to prove a Sect quite contrary to Scripture shall denote that very Sect in his Mouth, which he thinks to be according to the Sense of Scripture, which he has therefore dignified with that name, the Sense of Scripture; nor are the Papists more in the right than they, who pretending to adhere to the Word of God; for among them the Word of God signifies that *Oglia* of Superstitions which they would obtrude upon the Protestants instead of God's Word.

CHAP. VIII.

The Clearness and Distinction of Ideas, as also of their Obscurity and Confusion.

AN *Idea* clearness may be discern'd from *Distinction*, and obscurity from confusion; for we call that a clear *Idea*, when it imprints in us a Sence of it self, whereas otherwise it may not be so distinct. The *Idea* of Pain, because it strikes so sensibly, may be call'd a clear *Idea*; but yet it is confused, because it represents Pain to us, as being in the Hand, when indeed it lies in the Sence.

Nevertheless, we may call every *Idea* clear, so as it is distinct; for all Obscurity arises out of confusion. Thus the Sence of the Pain that hurts is clear and also distinct; but what is confused in the Feeling, that is to say, that the Pain is in the Hand, cannot be said to be clear.

Now because *Clearness* and *Distinction* are one and the same in *Ideas*, it will be very requisite to examine why some *Ideas* are clear, others confus'd.

But this will be more apparent by the help of Examples, than any other way, and therefore let us weave together a Catalogue of the first *Ideas*, as well clear and distinct, as obscure and confused.

The most clear *Idea* is that which every Man of himself, as of the *Thing that thinks*; as also the *Ideas*.

Ideas of those other Appendixes to our *Thought* as to *Judge, Discourse, Deliberate, Perceive, imagine.*

Ideas of extended *Substances* also are most clear to us, as also the *Ideas* of their *Properties*; as *Figures, Motion, Rest*; for though we feign that there is no *Body, no Figure* (tho we cannot feign any such thing of the thinking *Substance, while we think*) yet we cannot say clearly perceive what is *Extension* and *Figure*.

We also clearly apprehend *Duration, Order, Number*, so that we consider the *Duration* of thing to be *Form*, under which we consider thing, so long as the *Form* continues in it: *Order* and *number* no way differ in effect from *Things* order'd and number'd.

All these *Ideas* are so clear, that we frequently render them more obscure, while we endeavor to illustrate them with new *Observations*, and from to our selves other *Ideas* than those which we borrow from *Nature*.

We may also say, that the *Idea* of *God* is clear in one respect, though in another most obscure and imperfect.

It is clear, because it suffices to discover the great number of *Attributes* in *God*, which we certainly know are no where else to be found but in *God*; but it is obscure in respect of that *Idea* which the *Blessed* have of him in *Heaven*. And it is also imperfect, in regard our *Minds* being limited and finite, cannot but most imperfectly conceive an infinite

Being ; for Perfection and Clearness in *Ideas* are two different things. For they are *Perfect*, when they represent to us whatever is in the Object *Clear*, when they represent to us as much as our Powers to apprehend the Object clearly and distinctly.

(On the other side, they are confus'd and obscure in which we have of *Sensible Qualities* ; as of *Colors, Sounds, Odors, Taste, Cold, Heat, Pendero- &c.* As also those of our Desires, as of *Hunger, Thirst, Pain, &c.* Now mark the reason of Obscurity of these *Ideas*.)

In regard we were first Children before we were Men, and that exterior things operating within us, stirred up various Sensations in our Mind, by the force of those Impressions which they made in our Bodies ; the Mind conscious that those Sensations are directed against her Will, and that by some Bodies (for Example, the Sensation of heat by the Fire) would not only judge that there were some things without her, which were the causes of these Sensations (wherein she was not deceived) but going further, imagin'd something in the Objects, altogether like Sensation, or at least like the *Ideas* thence arising. Upon these Considerations therefore, she transferr'd *Ideas* to her self, and transferr'd the Sensations of *Heat, Cold, &c.* into those things that are without her. And by that means those confus'd and obscure *Ideas* of sensible Qualities arose from hence, that the Mind intermix'd her own false judgments with those that she deriv'd from Nature.

Now

Now in regard these *Ideas* are not natural *Arbitrary*, Men have made a most fantastical of them, and turn'd them into meer *Chimera's*; though that *Heat* and *Burning* are two sorts of *sation*; the one weaker, the other fiercer, we allow'd heat to the Fire, affirming Fire to be endued with heat, yet we have deprived Fire of burning Faculty, or of the pain which we feel approaching too near it, denying Fire to be affected with Pain.

But if Men had rightly apprehended, that Pain is not to be attributed to the Fire that burns the Hand; yet had they been in another Error, when they thought pain to be in the Hand which the Fire burns, when as pain is only in the Sense.

This was not only the Opinion of some of the Ancient Philosophers, as the *Cyrenarchs*, but even St. *Austin* himself; For, says he in his 14. Book *De civitat. dei*, Pains said to be Pains of the Flesh, are pains of the Soul in the Flesh and out of the Flesh; for pain of the Flesh is only an injury to the Soul, and certain dissent from its suffering: as the pain of the Soul, which is Sadness, is a dissent from those things that befall us against our Wills.

Thus in his seventh Book upon *Genesis*, chap. 10. When the Soul feels the afflictions of the Body, she is offended in her act of Government of the Body, her Rule being disturb'd, and this offence is call'd Pain.

Now that that Pain which is call'd the Pain of the Body, belongs to the Soul and not to the Body, is manifest from this, that those things that affect us with

Pain, seldom trouble us when our minds are
 bent upon other things, as we find by the *African*
King (of whom *St. Austin*, lib. 14. *de Civitat. dei*,
 24.) *Who when pleased, upon the Counterfeiting of*
Joans and Lamentations, would so abstract himself
 from Senses, and lie as it were for dead, that they could
 not make him sensible of pinching and pricking, nor of
 heat of Fire, till it began to scorch his Skin.
 Moreover it is to be observed, that neither the
 disposition of the Hand, nor any motion arising
 from burning, causes the Soul to be sensible of the
 pain, unless this Motion be communicated to the
 Brain, by certain small Strings included in the
 Nerves, and extended from the Brain to the Hands,
 and other parts of the Body, which cannot be mo-
 ved unless that part of the Body be also moved from
 whence they derive themselves. So that if there
 be any Accident that hinders these little Strings
 from communicating their motion to the Brain (as
 in the *Palsie*) a Man may endure Wounds and
 Pain without any sence of Pain. Infomuch, that
 what appears yet more strange, a Man may have
 a pain in his hands that wants hands, as often it
 happens to those whose hands are cut off; for that
 if the threads of the Nerves extended from the
 Hand to the Brain be moved near the Elbow,
 where they terminate, they may move that part of
 the Brain to which they are fastned, in the same
 manner as it might be moved, if the same threads
 descended to the hand, as the one end of a small
 Rope may be moved in the same manner, if drawn
 about

about the middle, as if pulled at the other extremity ; and thus the Soul should feel the same as it would feel if the Person had hands. For the Soul directs its attentiveness thither from that motion of the Brain used to proceed, before affected it with that sort of Pain. The Reflections that we behold in a Glass appear in the same place where they would be, should they be looked upon with direct beams, as being the usual manner of beholding Objects.

And these things shall suffice to let us understand that it may well be, that a Soul separated from the Body may be liable to the Torments of Hell, and to feel the same Pain, as any one would feel through the Tortures of Earthly-fire ; in respect that when it was join'd to the Body, it was not the Body but the Soul that felt the pain of the Fire, that pain was nothing but a certain sadness of the Mind wherewith it was afflicted for the suffering of the Body, to which it was join'd by God. We then may we not conceive that Divine Justice should so accommodate some part of the material Body to the separate Soul, that the motion of that part may excite troublesom and afflicting Thoughts in the Soul so separated.

But let us return to confused *Ideas*. The *Idea* of Ponderosity is no less confused than any of the rest already recited ; for, having observed from our Infancy, that Stones and other heavy things fall down as soon as let go out of our Hands, we form an *Idea* of the thing falling which is genuine

Then We also form'd an *Idea* of the Reason why
 something does fall, which is true likewise; but
 For we only saw the Stone, and nothing else that
 fell downward, out of the Rashness of our
 Judgment, we concluded there was no such thing
 That we did not see, and therefore that the
 Stone fell by vertue of its own proper and intrinsic
 Force, and at length we affix'd to this confused *Idea*,
 the only in our own Judgments the name of Pon-
 derosity.

When we came to pass also, that we made different
 Judgments of the same Things of which the same
 Element was to be asserted, for as we saw Stones
 moved toward the Earth, we found Straw move
 upward Jet, and Steel toward the Loadstone.
 Therefore the same Reason that bequeaths that
 Property to Stones to be moved toward the Earth,
 does not allow the same qualities to Straw and Iron
 moving towards Jet and the Loadstone. How-
 ever, this would not satisfy; but on the contrary,
 we have assign'd to Jet, Amber and the Loadstone
 certain Qualities which we call *Attractive*, when
 in the same case we might have endued the
 Earth with the same quality of Attracting heavy
 things. However these attractive Qualities (as
 Ponderosity it self) sprang from Illegitimate
 Association, by which it was concluded, that Iron
 is necessarily attracted by the Loadstone, because
 there was nothing seen that push'd the Iron to-
 ward the Magnet; whereas it can never be con-
 cluded, that one Body should attract another, un-
 less

less the Body attracting be moved, and the Body attracted be fastned to it.

To these Judgments of our Infancy, we owe those *Ideas* that represent to us Ponderous and Things, more solid than light and thin, and having more Body or Matter. Thus we believe a Vessel full of Gold contains more Matter than it was fill'd with Air, for those *Ideas* deriv'd themselves from no other Foundation, than that when we were Children we were wont to make external Judgments of all Things, according to their Actions in reference to us. Hence because ponderous and hard Bodies acted more violently than Light and Thin, we concluded that they contained more Substance than the other. When true Reason tells us, that the same part of Matter possesses the same space, and the same space is always filled with the same quantity of matter.

So that a Cubic Vessel of a Foot will contain more Matter, being fill'd with Gold than Air. Not in some Sense it may be said, that being fill'd with Air, it contains more matter, for a Reason not now longer here to be insisted on.

It may be said, that from the same Root of Faulty judging of Things, sprang the foolish Opinions of some, That our Souls are either the thin part of the Air composed of *Atoms*, according to *Democritus* with the *Epicureans*; or the Air kindled as the *Stoicks*; or a particle of Celestial Light, as the *Manicheans*, or of later Days, *Fluid*; or a subtle Wind, as the *Socinians*; for none of these could ever be perswaded

wade themselves that Wood, Stones or Durt
 d ever be capable of thinking. And therefore
 at the same time that he asserts with the
 ks, our Soul to be a subtle Flame, places it a-
 ng absurdities, not to be endu'd to think it should
 derive its Original from Earth or thick Air;
 saith he, *I beseech ye, is it possible to think that*
a force and mass of Memory was ever sowed in the
earth to spring up again, or thickned together out of
thick and Foggy Air? For they believed that the
 are subtle and pure they made the matter, so much
 e less material, the less thick and corporeal it
 ould be, that so at length they might rarifie it into
Thing of Thought, which however is very ridicu-
 us; for a Body is not thinner than a Body, only
 at is divided into lesser particles, and more easily
 agitated. For thus on the other side it makes less
 substance than other Bodies; on the other it more
 sily penetrates their Pores. But whether it be in-
 visible or divided, whether it rest or be moved,
 owever it is not less material, less corporeal, or
 more capacious of Thought, it being impossible
 hat the Motion or Figure of the Matter, whether
 subtle or thick, should have any thing common
 with Cogitation; or that a certain part of the
 matter that never thought, when it rested like
 the Earth, or was gently moved like the Water,
 should come to a Knowledge of it self, upon a
 more vehement Motion or augmenting the Force
 of Agitation.

Much

Much more might be said upon this Subject but this shall suffice for the understanding confused *Ideas*, when they have all their Causes to these.

There is one Remedy for this Mischief cast away all prejudicate Opinions ingrafted our Infancy, and to assert nothing of what longs to Reason to pronounce, because we judg'd it heretofore, but because we now it to be so upon Examination. So shall we only natural *Ideas*, and for such as are common we shall only retain those that are clear, as there is something in the Fire which is the Reason that I feel the heat ; that all things which are derous, are push'd down by some certain cause ; determining any thing of what is in the Fire causes that burning, or of the cause that makes Stone fall down till I find my knowledge confirmed by clear Reasons.

C H A P. IX.

Examples of confused and obscure Ideas drawn from Ethics.

In the former Chapters we have brought some examples of confused *Ideas*, which for the reason given, we legally assert to be false; but being taken out of *Physics*, it may not be from the same source to produce some others out of *Ethics*, in respect that false *Ideas*, which are form'd of *Vertues* and *Vices*, are far more dangerous.

For indeed is any one more happy, or more unhappy, because he has a true or false, a clear or obscure *Idea* of *Ponderosity*, *Sensible Qualities*, or the *Senses*. In those things he be more or less knowing, he neither be the better nor the worse; whatever Opinion be touching those things, we shall not alter it for our own sakes. Their Being is independant from our knowledge, and the Conduct of our Life is independant from their Being. So that all Men are allowed to await that Knowledge which shall be our portion after this Life, and to leave the Government of the World to the Goodness and Wisdom of God who governs it.

But no Man can excuse himself from endeavouring to acquire a right Information concerning *Vertue* and *Vice*, because that from the Prescripts of Judgments made upon these Things, our Lives are

to be govern'd, our Manners compos'd, and the eternity of good or evil to be expected.

And as the false *Ideas* of Vertue and Vice are the reason that we judge amiss of them; so it is much better would it be to know and amend these than to study the rectification of those other, which precipitancy of Judgment and the prejudicate Errors of Youth have obtruded on us in reference to natural Things, which can only supply Matter for lean and barren Speculation.

To discover all those false *Ideas*, would require a Transcription of the whole Body of *Ethicks*; but our only Design here is to propose certain Examples of the manner, how they are formed, by annexing together several *Ideas* that are not naturally annexed, which produces several vain and idle notions, which Men never cease hunting after, and miserably waste their time in hopes to attain, which is of no value when attain'd.

Man finds in himself the *Ideas* of Misery and Happiness, which is neither false nor contradictory while general and abstracted: He has also the *Idea* of Baseness and Excellency. He covets Happiness and avoids Misery; he admires Excellency, despises Baseness.

But the Contamination of Sin, which has separated God from Man, in whom alone he could find true Felicity, and to whom alone he owes his being, has affix'd this *Idea* of Misery to an innumerable Company of other Things.

and the Love and Prosecution of which Man is car-
headlong, as if he thought to recover his lost
ity in them. Hence has arisen a vast heap of false and ob-
Ideas, while every one thinks he shall be hap-
in the possession of what he loves; miserable,
prived of it. But Man has lost his true No-
y, and real Excellency by Sinning. Hence,
he may love himself, he is constrain'd to repre-
himself to himself, other than what indeed he
nd to; hide his Indigencies and Miseries from
self; to add many things to the Idea of him-
which belong not to him, to the end he may
ear Greater and more *August*. And now behold
common Series of these false Ideas.

The first and chiefest is the propensity of Con-
science to the Pleasures of the Sence, arising
in some exterior things: For when the Soul per-
ves that her darling Pleasures proceed from those
things, she immediately joins the Idea of Good
those Things, and the Idea of Bad to those other
things that deprive her of those Pleasures. And
serving afterwards that Power and Riches are the
ual Instruments, whereby to acquire the means
indulge Concupiscence, she begins to esteem these
great Happineses, and pronounces for Blessed,
the Rich and Potent that enjoy them; the Poor,
miserable, for being depriv'd of these Delights.

But now as Felicity has always Excellency for her
companion, and the Mind never separates in the
two Ideas, but always looks upon as Great, all the

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that

that she considers as happy, and as little and meagre all those that are poor and unhappy. And this is the reason that we condemn the poor, and adore the opulent. But these are such unjust and false Judgments, that St. *Thomas* believes, it is this Worship and Admiration of Riches, which is so much condemn'd by St. *James* the Apostle, while he assigns a more honourable place to be assign'd to the Poor than to the Rich; though this place is not to be so literally expounded, as if we were not to show some outward-veneration to the Rich, which is due to the Poor; seeing that the Order of the World, which Religion does not disturb, requires it, and this practise has been all along observ'd among Men, highly eminent for their Piety. And therefore it is to be understood of that inward respect, which looks upon the Poor as subjected under the Feet of the Rich, and the Rich as infinitely exalted above the Poor.

But though these Ideas and the judgments that arise from thence are false and unreasonable, yet are they common to all Men that have not rectified them, as proceeding from Concupiscence with which all Men are infected. Hence it happens, that we not only think so Honourably of the Rich, but that we also know that all other Mortals render them the same Honour and Esteem. So that we represent to our selves their Condition not only environ'd with all Splendor and Advantages that attend it, but Worship it with all that inward Adoration of Judgments with which we flatter the Wealthy.

Wealthy, and are known not only by the Common Discourse of Men, but by our own Experience.

This Phantom of a rich Man, whom the Croud of his Admirers surround, gaze upon with fixed Eyes, and reverence with an inward Worship of Fear, Observance and abject Servility is the true Idol of the Ambitious, for whose sake they endure so many Miseries, and throw themselves into so many Dangers.

Now that it may appear that this is that which they all covet and adore, let us suppose that there were but one only Man in the World endued with Reason, and all the rest Men meerly in Shape, were all but Statues moved by Engines; and that one thinking Man, knowing well that all those Statues that resembled him outwardly, were all deprived of Reason and Thought, had a secret way to move them by certain Springs, so that they might perform all the Offices which he had a mind to require from Men; we may believe this Person would sometimes take pleasure to divertise himself with the several Movements he should give to these Statues; but certainly he could never delight himself or take any pride in the Honours, Bows and Cringes that they made him; rather he would be as weary of them as of so many Puppets; and at length would satisfie himself with such a train as should suffice for necessary Services, without desiring any greater number of these Statues than should be for his Use.

So that it is not the simple and external Ob-
sence of Attendants separated from the internal
mission of the Mind that is the Object of aspira-
Ambition. 'Tis Dominion over Men not State
which they covet ; and the pleasure of those
Rule, proceeds from the Impressions of Fear,
Esteem and Admiration, which they imprint in
others.

From whence it is manifest that the *Idea* in
which they are blinded, is no less vain and empty
than the *Idea* of those whom we properly call
Vain-glorious Men, who are they that feed themselves
with Praises, Eulogies, Titles and other Things
of this Nature : The only thing that distinguishes
the one from the other is the single difference
Opinions and Judgments, which both are desirous
to communicate to others. For as it is the main
fire of the *Vain-glorious* to excite in others a Sense
of Love and Esteem for their Knowledge, Ex-
perience, Wit and Dexterity ; 'tis the Delight of
Ambitious to excite in others Motions of Terror
of Obedience and Submission to their Grandeur
and *Ideas* conformable to those Judgments, by means
whereof they appear Formidable, Exalted and Pre-
minent. So that both the one and the other place
their Happiness in the Thoughts of another : But
the one make choice of one sort of Thoughts, the
other of another.

There is nothing more common than to see these
vain Phantoms compos'd of the false Judgments of
Men, how they overturn Enterprizes of great
Importance

importance, as being the principal mark to which the Actions of our Lives are directed.

That same Valour so highly esteem'd in the world, which causes them that would be signal'd for brave and stout, to throw themselves into the most apparent and threatening Dangers, is no more oft-times than an over earnest bending the mind to these vain and shallow Things that fill the Brain. Few Persons when they are serious of their Life, and they who seem to dare Death at a reach or in a Battel, tremble like others and frequently are more afraid when Death attacks them in their Beds. But this same bravery of theirs which they shew upon sundry Occasions proceeds from hence; that they have still hovering before their Eyes the Reproaches thrown upon Cowards and Pusillanimous Creatures; and on the other side applauses which are given to the Valiant; and the Phantasm arising from these two Considerations possesses their Minds, that they have no leisure to think upon Death.

For this Reason the Person that is most content in the sight of Men, becomes the most Generous and Brave; and that, because of the Judgments which other Men make of him. Hence it comes to pass that the Captains are more Courageous than the Common Souldiers, and that the Nobility and Gentry carry more lofty Minds than the Ordinary Sort of People. For that having more Honour to loose and to acquire, they are more sensible and jealous of it. The same Labours,

said a great Captain, are not equally toylsome
General of an Army and a Common Soldier :
the Captain of an Army, upon whom the Eye
all Men are fix'd, is thrust forward to difficult
Undertakings, whereas a Common Souldier dis-
his Thoughts no farther than the hopes of his
or the gains of Plunder, or the Reputation of
ing Stout, which seldom extends beyond his
Regiment.

What do they propose to themselves that
such stately Fabricks above their Condition and
Fortune ? Not the Advantage of commodious
living therein. For such a costly Magnificence
does them more harm than good ; and it is
evident, that if they were alone in the World,
would never put themselves to that Charge
Trouble ; or if they thought they should be
spis'd by all that saw those Houses. There
the Houses are built for the sake of others,
they think will applaud the Buildings. They
imagine that all that shall behold those Palaces
will entertain Motions of Respect and Ad-
miration for the Master. And therefore they
present themselves to themselves as in a Theatre
sitting in the midst of their Palaces, environed
with crouds of People, that behold all from Top
to Bottom, and thence conceive them Great,
Content, Happy and Magnificent ; and this *Idea* fills
their Minds, spurs them on to those Expences
to be at that Trouble.

Why do Men load their Coaches with such a
 number of Lacqueys? Not for the great
 convenience they do, for they are rather a Trouble than
 a convenience; but to imprint in the Minds of
 Beholders an *Idea*, that it is some Person of
 great Quality that passes by; and the prospect of
 that *Idea*, which they imagine the sight of a Coach
 laden will create in the Beholders, satisfies the
 vanity of him to whom those Coaches belong.

And thus, if we weigh in the same ballance all
 conditions, all Employments, all Professions that
 are esteem'd in the World, we shall find that that
 which renders them delightful, and alleviates the
 pain and Toyl that attends them, is this, that they
 present to the Mind the *Idea* of Respect, Esteem,
 Fear and Admiration that others have for us. On
 the other side, that which renders Solitude tedious
 to the most part of the World, is this, that in se-
 parating themselves from the view, they also sepa-
 rate themselves from the Judgments and Thoughts
 of Men. For so their Hearts become empty and
 famish'd, as being depriv'd of their usual Nourish-
 ment, and not finding in themselves, wherewithal
 to feed their Thoughts. And therefore the Hea-
 then Philosophers deem'd a solitary Life so insup-
 portable; that they scrupled, not to aver, that a
 wise Man would not be bound to enjoy all the
 Blessings of Body and Mind, to live alone; and
 not to have any Person to whom he might impart
 his Happiness by Discourse. And indeed there is
 nothing but the Christian Religion that can render

Solitude desirable; for because it teaches Men to despise the World, it affords them at the same time other Objects to employ the Mind, and is worthy to fill the Heart, for which they have need of the Sight and Commerce of Company.

But here it is to be observ'd, that the desire Men do not terminate in knowing the Thoughts and Judgments of others concerning themselves, but being known, they make a farther use of this to Aggrandise and Exalt the *Idea* which they have of themselves, adding to *them*, and incorporating other Ascitious and Foreign *Ideas*, and imagining through a gross Delusion that they are really greater, because they live in a larger House, and that there are more people who admire them. Though all these Things are extrinsecal as to themselves, and belong not to them at all; nor can the Thoughts of other Men preserve or vindicate them from the want and misery to which they were before obnoxious.

From whence we may discover what it is that renders agreeable to Men several Things which otherwise are altogether incapable to divert and delight the Mind. For the Reason of the Pleasure that Men take therein arises from this, that the *Idea* of themselves represents them to themselves greater than ordinary, by means of some vain Circumstance which they add to it.

They take Delight in discoursing of the Danger they have run, as forming from the Accidents an *Idea* which represents us to our selves, either as prudent,

ident, or else particularly favour'd by God. We
to discourse of Sickneses we have escaped, as
representing to our selves the strength of our Bo-
s, able to encounter such desperate Attacks of
any mortality.

We love to be Victorious in every Thing, even
Play, wherein there is nothing of Cunning but all
hazard, though we do not play for Gain; adding
our own *Idea* the *Idea* of Happiness at the same
time. This imaginary Happiness we are apt to
think belongs to us, as a permanent Quality, which
makes us claim the same success for the future as our
present. Thus Gamesters chuse to try the Fortune
of the Dice with some before others, which is
nevertheless very Ridiculous; for a Man may
be said to have liv'd happily to such a moment,
but that he shall have the same Fortune the
hour; there there is no farther probability, but
that we may be as certain that they who have
been hitherto miserable, may for the future be
happy.

And thus their Minds, who are addicted to
the World, have no other Objects of their De-
sires, than these vain *Chimeras* that daily distract
their Brains; and even they who carry the great-
est Reputation for Wisdom, feed themselves with
these Dreams and Delusions. And therefore only
they who direct their Lives and the Action of their
Lives to Eternal Things, may be said to fix their
Thoughts upon real, solid and permanent Ob-
jects, when all others do but follow Vanity and en-

pty Nothing, and give themselves over to Lye
Errors.

CHAP. X.

*Of another Cause of Confusion in
Thoughts and Discourse; Ideas annexed
to Words.*

WE have already said, that the Necessity we have to make use of External Signs to express our Minds, is the Reason that we fix *Ideas* to words in such a manner, that many times we consider the Words more than the Things.

For it is to be observed, that though Men have frequently different *Ideas* of the same Things, nevertheless they make use of the same words to express them; as the *Idea* which a Heathen Philosopher had of Vertue, is not the same which a Divine hath, yet both express their *Idea* by the same Word *Vertue*.

Moreover the same Men, at different Ages, have consider'd the same Things after very different Manners; and yet they have rammas'd all these *Ideas* under one name: Which is the Reason, that in pronouncing the word, or hearing it pronounc'd, a Man is presently Confounded, apprehending the word sometimes according to one *Idea*, sometimes according

according to another. For Example, a Man understanding that he has something within him, whatever it be, which is the occasion of his Nourishment and Growth, has call'd it a *Soul*, and has extended this *Idea* not only to what resembles it in Animals, but in Plants.

And perceiving also that he had *Thoughts*, he has call'd this principle of *Thought* by the Name of the Soul. Whence it has come to pass that by this Resemblance of the Name, he has taken for the same Thing, the principle of Thought, and the principle of Nourishment and Growth. In like manner, the Name of *Life* is given to that Faculty from whence the Animal Functions proceed, as also the Cogitative Faculty, which are two Things absolutely different.

Thus these words, *Sence* and *Sensation*, when they are spoken of any of the Five Senses, are vehemently pester'd with *Equivocations*. For three Things happen to us when we make use of our Senses; as, 1. When we see any thing. There is a Motion in the Corporeal Organs, as the Brain and Eye. 2. These Motions give an occasion to the Soul to perceive something. As when by the Motions first begun in the Eye, by the Reflection of the Light, in the falling Rain oppos'd to the Sun-Beams, it has the *Ideas* of Red, Blew and Yellow. 3. We make a Judgment of what we see; and thus we judge these Colours to belong to the Rainbow, which we pronounce to be of such a Magnitude, of such a Figure, and at such a distance from

from us. Of these three the first only belongs to the Body; the other two solely to the Mind; however by occasion of what is perform'd in the Body. Nevertheless we comprehend all these three Things under the name of *Sence* or *Sensation* of the Sight or Hearing. For when we say the Eye sees, the Ear hears, it cannot be understood but according to the Corporeal Organ; it being apparent that the Eye does not apprehend the Objects which it sees, nor judge of them. On the other side we do not say, we have seen such a one, if the Mind, call'd off by another Object, has not made Reflection upon the Person that presented himself before our Eyes. And then we take the word *See* for the Thought form'd in our Mind, in pursuit of what pass'd in our Eye and in our Brain. And according to this Signification of the word, *See*, it is the Soul and not the Body which sees, as *Plato* maintains, and *Cicero* after him. For indeed, *saith he*, we do not now behold with our Eyes the Thing which we see; for there is no sence in the Body. There are as it were certain Passages made from the Seat of the Soul to the Eyes, the Ears and Nose, and therefore seeing often interrupted either by some thought, or the force of some Disease, we neither hear nor see with open or entire Eyes or Ears. Whence we may easily apprehend that the Soul both hears and sees, not through parts which are but as the Windows of the Soul. In short, we take those words, *Sensation* of Sight, Hearing, &c. for the last of these three Things, that is, for the Judgments which the Soul makes in pursuit of

strance

longe of the Perceptions it has made, by occasion
; he that pass'd in the Corporeal Organs, as when
e Bo say the Sences are deceived, at the same time
Th we see a crooked Stick so appearing in the
e. Si ter, or the Sun but two Foot in Diameter. For
ees, certain there can be no Error or Falsity nei-
acco in those Things that happen in the Corporeal
par gans, nor in the bare Perception of the Soul,
wh ich is only a simple Apprehension ; but the Er-
de proceeds from hence, that we judge amiss, in
if concluding that the Sun is but two Foot in Dia-
me ter, in regard that by reason of its vast distance
im om us, it comes to pass that the Image of the Sun
rd which is form'd in the bottom of the Eye, is near
ir Hand, of the same bigness which an Object of
d two Foot would form at a distance more propor-
it ionable to our manner of Sight. But because we
p have made this Judgment in our Youth, and for
a that we are so much accustom'd to it, that it is made
b at the same Instant that we see the Sun without
any Examination hardly, we attribute it to the
st Sight, and we say we see the Objects little or great,
as they are nearer or more distant from us, though
it be indeed the Mind, not the Eye that judges of
their smallness or magnitude.

All Languages are full of words of the same
Nature, which not having any more than one
Sound are nevertheless the signification of *Ideas* al-
together different.

But we are to understand that when an Equivo-
cal word signifies two Things which have no Re-
lation

lation one to another, and which Men have confounded in their Thoughts, it is almost possible that Men should thereby be deceived that they should be the cause of Errors. For Equivocal word, *Aries* a *Ram*, which signifies a certain Creature, and a *Sign* in the *Zodiac*, never impose upon a Person that has but a good common Sense. Whereas it is a difficult thing not to be deceiv'd when the Equivocation arises from the Errors of Men, who have negligently founded different *Ideas*, as in the word *Soul* we take it for granted, that they who first made use of those words, did inquire into their Significations, and so it suffices us to pronounce without ever examining whether the *Idea* we have of it be clear and distinct. Nay, sometimes we attribute those Things to the signification of the same word, which falls not but under different *Ideas* of Things altogether incompatible, not perceiving that we have confounded two different Things under the same Word.

CHAP. XI.

The Remedy of Confusion in our Thoughts and Ratiocinations, arising from the Confusion of Words: Of the Benefit of defining Words; and of the Difference between the Definition of Things and Names.

THE best way to avoid the Confusion of words, so which we find in different Languages, is to make a new Language, and to coyn new words, which belong only to those Ideas, which they are design'd to signifie. To which purpose there is no necessity to frame new Sounds of Words, because we may make use of such as are usually practis'd, looking upon them, as if they had no Signification, and we may ascribe to them those Notions which we intend them; which it behoves us to design by other simple words, free from all Equivocation. Thus were it to be prov'd, that the Soul is Immortal, this word *Anima*, the Soul, being Equivocal, will easily make a Confusion in what is to be said. For the avoiding of which, I will retain this word *Soul*, as a sound destitute of all Notion, and make use of it only to denote that Thing which in us is the principle of Thought, by saying, *call the Soul that, which in us is the Principle of Thought.*

Behold

Behold here the Definition of the Word, with so much benefit made use of by the Geometricians which is cautiously to be distinguish'd from the Definition of the Thing.

For in the Definition of the Thing, as thus, *Man is a Rational Creature, Time is the Measure of Motion*, we leave to the Term defin'd, that is *Man* and *Time* the usual Notion wherein we assert other *Ideas* to be contained, as the *Idea* of *Rational Creature*, *Measure of Time*, whereas in the Definition of the Word, as we have already said, we only mind the Sound, and afterwards determine the Sound to be the Sign of some *Idea*, design'd for other Words.

But great heed is to be taken lest we confound this Definition of the word of which we here Discourse, with that other of which others speak, we will have it be the Explanation of what a word signifies according to the vulgar Idiom of the Language, or its Etimology, which we shall speak more of in another place. But here we only mind the particular use to which he that defines a word will have it apply'd for the better understanding his meaning, not caring whether it be taken in the same Sence by others.

And from hence it follows, That the Definitions of Words are at pleasure, but that those of Things are not so. For every Sound being of itself, and in its own Nature indifferent, to signify any Thing, it is lawful for me, for my particular use, provided I advertise others of it, to deter-

mine

mine a Sound to signifie any thing precisely without the mixture of any other. But it is quite otherwise with the Definition of Things. For it does not depend upon the pleasure of Men that *Ideas* should include whatever they would have them to include: For that if in defining *Ideas* we add any thing which they do not comprehend, we fall into inevitable Error.

To give an Example of the one and the other: If in despoiling the word *Parallelogram* of all other signification, I apply it only to signifie a *Triangle*; this is lawful for me to do, nor do I commit any Error in so doing: Nay, provided I only take it in this Manner; I may affirm that a *Parallelogram* has three Angles equal to two Right Angles. But if I leave the Vulgar *Idea* to this word, to signifie a Figure whose sides are Parallel, and yet affirm that a *Parallelogram* is a Figure consisting of three Lines, in regard this would be then a Definition of the Thing, it would be absolutely false; it being impossible that a Figure consisting of three Lines should have it's sides Parallel.

In the second place it follows, that Contentions about the Definitions of Words ought not to be rais'd, for that Reason, because they are Arbitrary. For you cannot deny that a man has not given the signification to a Sound which he says, he has, after he has given notice of it, nor that it has not that signification according to the use which he makes of it; but we may contend about the Definitions of Things, because they may be false, as we have already shewn.

Thirdly,

Thirdly, it follows that every Definition Word, when it cannot be call'd in Question, be taken for a Principle. Which cannot be said of the Definitions of Things; in regard they are propositions that may be deny'd by those that find Obscurity therein. And therefore, like other propositions, they ought to be proved, and not taken for True; unless they appear perspicuous themselves, like Axioms.

But as to what I said but now, that the Definition of a Name may supply the place of a Principle, it requires a farther Illustration. For it is true, in regard it cannot be controverted but the determined Idea may be call'd by the assigned name. Nevertheless, we ought not to conclude any thing of the Idea it self, nor to believe it can exhibit any thing positively to us, that reason alone, because it is called by such Name. For Example, I may define the Name *Chimera*, and say, I call a *Chimera* that which implies a contradiction; however it does not then follow that a *Chimera* is any thing. In like manner a Philosopher says to me, I call Ponderosity the inferior Principle which causes a Stone to descend without any compulsive violence; I should willingly grant the Definition without contradiction, because it leads me to the Knowledge of what he desires to make me understand; but I will deny, that what is signified by the word Gravity, is any thing real, in regard there is no such principle in Stones.

will explain this a little farther, because there are two great Errors committed in Vulgar Philosophy upon this Subject. For it confounds the Relation of the Name with the Definition of the thing, and attributes to the former what only belongs to the Second. For the Philosophers having found an infinite number not of Names but of things according to their own Fancies which are altogether false, as not explaining neither the Nature of Things, nor the *Ideas* which naturally we have of them, yet they obtrude these Definitions upon us for such as are not to be contradicted. So that if any one deny them, when deservedly they may be denied, they exclaim against him as one that ought to be exterminated the Schools, as not to be disputed with.

Secondly, the Vulgar Philosophers very seldom or never make use of those Definitions of Names, to remove or clear any Obscurity, nor fix them to any certain *Ideas* clearly design'd, but leave them in Darkness and Confusion. Whence it happens that most of their Disputes, are only Disputes of Words; and whatever is clear and true in *Ideas*, that they abuse, to establish and maintain, what is confus'd and dark in the same: Which Error would be avoided by the Definition of the Name. Thus the Philosophers believe that there is nothing in the World more unquestionable than that Fire is hot, or that a Stone is heavy, and that it would be a Folly to deny either. Which indeed they may make all the World believe, so long as they forbear

bear from the Definition of Names. But once they do that, it will presently appear what is Obscure, and what apparent in reference to Things. First then it is to be asked them, they mean by these words *Hot* and *Ponderous*? they answer, that by *Hot* they only mean that which is only proper to cause in us a Sentiment of Heat, and by *Heavy* that which falls downward not by propriety; they may then deservedly say, that it is a Folly to deny Fire to be *Hot*, and Stones to be *Heavy*. But if they mean by *Heat* that which is in its self a Quality like to that which we imagine when we feel heat; and by *Heavy* that which is in it self an Internal Principle, which causes it to fall to the Center, not being compell'd by any Violence from without; it will be easie then to demonstrate to them, that it is no denial of a thing, but of a thing which is very Obscure, not altogether false, that Fire is hot in that Sense, or that a Stone is heavy; in regard it is apparent that Fire causes in us a Sense of Heat, by that action whereby it operates upon our Bodies, but it is no way evident that there is in the Fire any thing like to that which we feel in the Fire. And it is as evident in the same manner that Stones fall downward, but it is not so clear, that they fall of themselves without any outward detruing Violence.

Thus we see the great benefit of Defining Names, for that by this means we understand what it is we dispute of, that we may not contend in vain about words, which we understand some one way, some

another, as is frequently practis'd even in our
 ary Discourses. But besides this Benefit there is also another,
 which is, that we cannot many times have a distinct
 of a Thing, unless we make use of many words
 to denote it. Now it would be Impertinent espe-
 cially in writings that concern the Sciences to be
 always repeating a long Series of words. And
 therefore having once defin'd the thing by several
 words, we fix to some one word the *Idea* conceiv'd
 to serve instead of all the rest.

Thus after we have found that there are Num-
 bers that may be divided into two equal Numbers,
 to avoid the often Repetition of those words, we
 give this Propriety, and call a Number that may be
 divided into two equal Numbers, an *even Number*.
 Hence, it is apparent, that as often as we make
 use of the defin'd Name, the Definition is to be
 mentally supply'd, which a Man must have always
 ready in his Mind, that as soon as he hears e-
 ven Numbers, he presently understands such a
 Number as may be divided into two Numbers:
 and these two Things ought to be so inseparable
 from the Thoughts, that the Tongue should no
 sooner express the one, but the Mind should add
 the other. For they who have defin'd Names as
 the Geometricians do with so much Care, did it
 only to abridge their Writings (or as St. Austin
 says) *Least by continual Circumlocution they should*
create Delays: But yet they do not do it to abridge
 the *Ideas* of the Things of which they Discourse,

be-

believing the Mind will supply the entire Definition to short Words, which they only make use of to avoid the Perplexity which multitude of Words would produce.

CHAP. XII.

Certain Observations of great Importance touching the Definition of Words.

HAVING thus explain'd the Nature, Benefit, and Necessity of the Definition of Names, it is not to be from the purpose to speak something of their Use, lest an ill Use be made of them.

First, all Names are not to be defin'd; for it would be often unprofitable and impossible to do so. I say unprofitable; for that when the Ideas conceiv'd of Things are distinct, and that all Men understanding the same Language, conceive the same *Idea*, it would be superfluous to define such a Name, because we have already the intent of a Definition, as being fix'd without a Definition, by the distinct and clear *Idea*.

But this happens in Things that are purely simple, of which all Men naturally have the same *Idea*, so that the words by which they are denoted are understood by all Men in the same Sense, or there be any mixture of Obscurity, that which is clear is primarily understood. And so they will

make use of such words to denote a clear *Idea*, need not fear least they should be understood amiss. Which are the words, *Ent, or being, Thought, Extension, Equality, Duration or Time.* For though some may Obscure the *Idea* of Time by several Propositions, which they call Definitions; as, *that Time is the Measure of Motion according to Priority and Posteriority*; nevertheless they never mind these Definitions themselves, when they speak of Time, nor do they conceive any other thing of it. So that both Learned and Unlearned with the same Facility understand the same thing when they hear, *That a Horse takes up less time in pacing a Furlong than a Tortoise.*

I have said moreover, that it is impossible to define all words. In regard that to define some words, there is a necessity of using other words that express the *Idea*, to which that word is to be annex'd. And then if these words which were made use of to explain the first, be also to be defin'd; there will be a necessity for other words, and so to the Worlds End. And therefore there are some primitive Words which cannot be defin'd, and it would be as great a Fault to be too curious about their Definition, as not to define sufficiently; for both ways we fall into the same Confusion, which we labour to avoid.

The Second Observation is, that we ought not to change Definitions known and already receiv'd, unless we meet with something in them that is to be found Fault with; for it is always more easie to

to teach the signification of a word to others, what Custom already received, at least among the learned, has fix'd it to an *Idea*, than to annex it to another *Idea*, and force it from a former which it has been properly join'd by daily use. therefore it would be a great Error to alter Definitions receiv'd by the Mathematicians, where there are any that are not sufficiently plain and obvious to Sense, or such whose *Ideas* are Politely describ'd, as in *Euclid* may be thought. Definition of *Angle* and *Proportion*.

Thirdly, it is to be observ'd, that when there is a necessity to define a Name, it behoves us to approach as near as may be to common Custom, not to give to Words a Sense altogether Foreign to what they already have, or which are conformable to their Etymology; as if a Parallelogram should be defin'd, a Figure consisting of three Lines. But if the Word has two Significations, it must be depriv'd of one, that the other may be only annex'd to it. Thus when *Heat* signifies as well the feeling which we have of it, as the *Quality* which we believe to be in the Fire, like to that which we use to remove this ambiguity, I will use the Name *Heat*, but I must not apply it but to one of these *Ideas*, dismissing it from the other, saying, I mean *Heat* that feeling which I have when I come near the Fire; and to the cause of this *Sensation* I would give a name altogether different, as of *Ardour* or *Burning*; or else the same name with some Addition, which determines and distinguishes it from

Heat

is taken for the *Sensation* of it, as is that of *Vir-*
Heat.

The Reason of this Observation is taken from
 Experience, that Men after they have once affix'd an I-
 dea to a word, are not easily induc'd to separate
 from the Word : And so the old *Idea* still re-
 maining, obliterates the new which they have from
 the late Definition. So that Men more easily ac-
 quiesce from themselves to a Word of no Signification,
 than if a Man should rather use the word *Bara* to sig-
 nify a Figure consisting of three Lines, than de-
 spoil the word *Parallelogram* of the *Idea* of a Figure,
 whose opposite Sides are Parallel, to make it signi-
 fy a Figure whose opposite Sides are not Parallel.

This is an Error into which all the Chymists
 are fallen, who take delight to change the Names
 of the most Things of which they Discourse, and
 to give them Names which already signifie quite
 other Things, and which have no Correspondence
 with the Ideas to which they joyn the Words. Hence
 those ridiculous Ratiocinations of some of those
 People, particularly of one who asserts, that the
 Pestilence, as he imagin'd, being a *Saturnine Disease*,
 was to be cur'd by hanging about the Neck of the
 Patient, a plate of Lead, which is call'd *Saturn* by
 the Chymists, and whereon is also to be engrav'd
 upon a Saturday, which day is also sacred to *Saturn*,
 the Character by which the Astronomers denote that
 Planet. As if Arbitrary and Feigned Sympathetic
 Affinities between Lead and the Planet *Saturn*, or
 between the same Planet and *Saturday*, or the little

Signature of the Astronomers could be any effectual for the Cure of Diseases.

But that which is more insufferable in this gonry, or gibbrish of the Chymists, is their phrasing the Sacred Mysteries of Religion to them serve as a Vail to cover their pretended secrets; insomuch that some are arriv'd at that height of Impiety; as to apply what the Scriptures speak of the true Christians, *That they are the chosen of the Royal Priesthood, the Holy Nation, the People purchas'd by God, and whom he has call'd out of darkness to his wonderful Light,* to the Chimerical Fraternity of the *Rose-Crucians*, whom in their own Imaginations they term the only wise Men that have attain'd Immortal Happiness; as having by virtue of the Philosophers Stone, found out the way to the Soul in the Body; for as much, say they, there is no Body so fix'd and incorruptible as Gold. Of which Dreams, and of several others of the same Nature, there are to be found a great number in *Gassendus's Examen of Flud's Philosophy*. Which demonstrates that there is no Disease of the Mind more dangerous than that of Enigmatical Scribbling, which causes Men to imagine that their least Thoughts, if I may not call them False and altogether Impious, will pass for great Mysteries, clad in words unintelligible to the Common Sort of Men.

CHAP. XIII.

another sort of Definition of Names, by which their Signification are denoted, according to Common Use.

ALL that has been said of the Definition of Names, ought to be understood only of those, by which every one defines the Words for his particular use; and this is that which renders them Free and Arbitrary, it being in the Power of every one to make use of what Sound he pleases to express his *Ideas*, provided he give notice before-hand. But in regard that Men are not perfect Masters of any but their own Language, every one has privilege to make a Dictionary for his own Use, but not for others, nor to interpret their Words by particular Significations which we have fix'd to Words of his own. And therefore seeing that Notion of Words is not to be explain'd which is proper to our selves, but that which is proper to the Word according to Common Use, such Definitions are not to be call'd Arbitrary; yet are they to be oblig'd to represent, though not the Truth of the Thing, yet the Truth of the Use; and they are to be esteem'd False, if they do not really express the Use, that is, if they do not join to Sounds the same Ideas which are annex'd to such Sounds by the common Custom of those that make use

of them. And this demonstrates also to us that Definitions may be contested, because we find disputes about the signification which Custom gives to Words.

Now, though these sorts of Definitions words seem to be the business of the Grammarian whose Province it is to make Dictionaries, which are nothing else but the Explication of *Ideas* which Men have agreed to affix certain Sounds, yet we raise upon this Subject several important Reflections for the rectifying our Judgments.

The first, which may serve as the Foundation of all the rest, that Men do not many times consider the whole signification of Words; that is, that the Words often signifie more than they seem to signifie, and that therefore they who interpret the signification, do not thoroughly unfold all the *Ideas* which the Words imprint in the Minds of the Hearers.

For to signifie in a Sound pronounc'd or written is no other than to raise an *Idea* by striking our Ears or our Eyes. Now it comes frequently to pass that one Word, besides the principal *Idea*, which is look'd upon as the proper signification of the Word, excites several other *Ideas*, which may be term'd *Accessories*, of which we take little notice, although the Mind receive their Impression.

For Example, if a Man should say to another *You Lye*, and that there should be no more notice taken than of the principal signification of the Expression, 'tis no more than to say, *You know the*

contrary

contrary of what you affirm. But, besides this principal Signification, the Words according to Custom raise an immediate *Idea* of Scorn and Contempt, and make a Man believe that he who speaks the Words cares not what Injury he does the other; which renders the Signification of the Words injurious and offensive.

However sometimes these *Accessory Ideas* are not fix'd to Words by Common Use, but are only added thereto by him that makes use of them. And these are such as are rais'd by the Tone of the Voice, by the Alteration of the Countenance, by Gestures, and other natural Signs which fix to our Words an infinite number of *Ideas* which vary, change, diminish, augment the Signification by joining thereto the Image of the Motions, Judgments and Opinions of him that speaks.

And therefore, if he who affirm'd that the Tone of the Voice was to be measur'd by the Ears of the Hearers, believ'd it sufficient to speak loud enough to be heard, he understood not the use of the Tone of the Voice, the Tone oft-times signifying as much as the Words themselves. There is one Tone for Instruction, another for Flattery, another for Reprehension. Sometimes a Man is willing that his Voice should not only reach the Ears of him he speaks to, but that it should pierce and run through them. Nor would any one think it well, that a Lacquey being loudly and vehemently reprov'd, should answer, *Sir, speak lower, I hear you well enough.* For 'tis the Tone of the Voice that

makes one part of the Reproof ; and it is necessary to imprint that *Idea* in the mind of the Servant which the Master would have it make.

But sometimes these Accessory *Ideas* are fix'd to the Words themselves, for that usually they thoroughly excite those that pronounce them. And this is the Reason that among several Expressions that seem to signify the same Thing, some are injurious, some are mild, some modest, others impudent, some honest, others dishonest ; for besides the principal *Idea* with which they agree, Men have affix'd other *Ideas* which are the cause of this Variety.

And this Observation may serve to discover a piece of Injustice very usual among those who complain of the Reproaches thrown upon them, which is to change the Substantives into Adjectives. For Example, if they are accus'd of *Ignorance* or *Imposture*, presently they cry out for being call'd *Ignorant* and *Falsifying* Fellows, which is not reasonable, because that the words do not signify the same Thing ; for the Adjective, *Ignorant* and *Falsity*, beside the signification of the Offence which they discover ; they include the *Idea* of Scorn ; whereas the Substantives of *Ignorance* and *Imposture*, denote the thing to be such as it is, without aggravation or extenuation. And we might instance other Things that would signify the same Thing after such a manner, as would include moreover a soft and lenifying *Idea*, and which would demonstrate that the Person had a desire to Excuse and Extenuate

nuate the Crime which he laid to the others Charge. And those are the ways which Prudent and Moderate Men make use of, unless some Reason prevail with them, to act with more tartness and vehemency.

Hence also may be understood the difference between a plain and a figur'd Stile, and why the same Thoughts seem much more lovely, when they are express'd by a Figure, than if they were restrain'd to a plain manner of Speech. Which proceeds from hence, that figur'd Expressions, besides, the principal Thing, signifie the Motion and Gesture of him that speaks, and imprint both the one and the other *Idea* in the Mind, whereas simple Expressions sets forth only the naked Truth: For Example, of this half Verse of *Virgil*.

Usque adeone mori miserum est ?

were express'd simply and without a Figure,

Non est usque adeo mori miserum.

Without doubt the Sentence would not have had that force; and the Reason is, because the first Expression signifies more than the second; for it does not only express the Thought, that it is not so miserable a Thing as Men think to die; but it represents also the *Idea* of a Man, as it were provoking Death, and undauntedly looking it in the Face, which, without question is a great and live-

ly Accession to the Signification of the Word. Hence it is no wonder that it makes a deep impression in the Hearer; for the Mind is only instructed by the variety of Ideas, but she is not robut by the Representation of Affections.

*— si vis me flere dolendum est
Primum ipse tibi —*

*— If thou wouldst have me weep, it first behoves
thy self to grieve —*

But as figur'd Stile not only signifies the Things themselves, but also those Affections of the Mind which we conceive in meditating and speaking we may judge from thence, the use which we ought to make of it, and what are the Subjects most proper for it. Visible it is, that it is ridiculous to make use of it in matters meerly Speculative, which we contemplate with a calm and placid Eye, and which produce no Motion in the Mind. For since that Figures express the Passions of the Soul, where Figures are intermix'd where the Soul is no way mov'd, such Agitations of the Mind are contrary to Nature, and seem to be a kind of Convulsion. For which reason there can be nothing more preposterous than the stir and hurly burly which some Preachers make, who fly out into Fury and Extravagant Bombasts, upon all manner of Subjects, and who are no less Furious upon Philosophical Digressions, than upon Truths, the most weighty and necessary for Salvation.

On

On the other side, when the Subject of the Discourse is such, that it requires a rousing and waking of the Mind, it is a fault to deliver himself in a jejune and frigid Style, and without any manner of Motion.

Therefore Divine Truths not being simply propos'd only to be known, but much more to be belov'd, reverenc'd and ador'd by Men, without doubt, the noble, elevated and figur'd manner of Elocution, observ'd by the Holy Fathers, is much more proportionable to the Subject, than a flat and meager Style, like that of the Scholasticks; since it not only teaches us the Truths we are to know, but also endeavours to raise in us those Sentiments of Love, Reverence and Affection, which the Fathers had for those Truths; when they wrote, and which representing, must of necessity contribute more to imprint the like in us. Whereas the Scholastic stile being plain, and contenting it self with the *Ideas* of the naked Truth, is nothing so effectual to produce in our Souls those Motions of Respect and Love, which we ought to have for the Truths of Christianity; which render it not only less profitable, but less delightful, since the Soul it self is more delighted in observing the Motions of her Affections, than in acquiring Knowledge.

Lastly, 'tis by means of this Observation, that we may resolve that famous Question among the Ancient Philosophers, whether there be any word to be counted unchast? And by which we

also refute the Arguments of the *Stoicks*, who justify that we might make use indifferently of any Word, though Impudent and Obscene.

They were of Opinion, saith *Cicero* in a Letter which he wrote upon this Subject, That there were no Words that were either Nasty or Obscene ; for they say, that the Obscenity proceeds either from the Things, or it is in the Words. It does not proceed simply from the Things, because they may be express'd in other Words that are not esteem'd so Nauseous ; nor is it in the Words, consider'd as they are, because it happens oft-times, that one Word signifies two Things, and so in one signification it may be nauseous, in another well enough approv'd.

But all this is no more than a vain piece of subtlety which grew from hence, that those Philosophers did not consider those accessory Accidents, which the Mind adds to the principal Ideas of Things ; for from thence it comes to pass, that one and the same Thing may be express'd honestly by one sound, and lasciviously by another, if one of the sounds has an Idea which covers the Obscenity, and the other an Idea that lays it open.

Thus *Adultery*, *Interest*, *Male-Copulation* are no Obscene Words, though they signify most Obscene Actions, because they represent them cover'd with a vail of Abhorrency, which shews that we look upon them as Crimes, so that those Words rather signify the Wickedness of the Actions themselves. Whereas there are certain words that express those

Acts,

justly, without any Abhorrency, and which describe them rather grateful and pleasing, withal, adding in *Idea* of Impudence and Lasciviousness. And those are the Words which are said to be Bawdy and Dishonest.

There are also certain Circumlocutions, by which certain actions are chastly exprest, which, though lawful, yet participate something of the Corruption of Nature; for such Circumlocutions, not only plainly exprest the things themselves, but also the disposition of him who speaks of 'em in that manner and which by his reserv'dness testifie, that he mentions 'em with trouble and dislike, and that it is his desire they should be conceal'd, as well from himself as from others: Whereas others uttering the same things more freely and at random, make it appear, that they take delight in those kind of objects, which being a Lascivious Pleasure, it is no wonder, if the words which imprint that *Idea*, should be accounted contrary to Modesty.

For which Reason it comes to pass, that sometimes the same word is esteem'd modest at one time, and immodest at another; which has constrain'd some of the *Hebrew* Rabbies, to place certain *Hebrew* words in the Margin of the Bible, to be pronounced by those that read it, instead of those which the Scripture makes use of; which happen'd from hence, that when those words were made use of, they were not at all immodest, because they were read with some certain *Idea* that represented these words with reserv'dness and modesty. But afterwards

that *Idea* being separated, and custom having added another of Impudence and Wantonness, they became nauseous and uncivil: And therefore the *Rabbies* prevent the mind from being amus'd with that *Idea*, were solicitous, that the People should make use of others in reading the Bible, which no way alter'd the Text.

And therefore it was an ill Excuse of an Author, whom the Profession of Religion oblig'd to an exact Modesty, and who was deservedly tax'd to have made use of an undecent Word, to signify an infamous Place, to alledge, that the Fathers have not scrupled to make use of the word *Lupanar*, *Brothel-house*, and that he often found in their Writings, the words *Meretrix* and *Lena*, *Whore* and *Fander*, and several others hardly to be endured in our Language. For the Liberty which the Fathers took to make use of those words, ought to have convinc'd him, that they were not at that time accounted words of Ignominy; that is to say, that Custom had not added that *Idea* of Obscenity which render'd them Infamous; and therefore he drew an ill conclusion from thence, that it was for that reason, permitted him to make use of Terms of Debauchery, so esteem'd to be in our Language; for that these words do not really signify the same thing, which those did of which the Fathers made use; seeing that besides the principal *Idea* in which they agree, they also exhibit the *Idea* of a debauch'd Mind, and contain a mixture of Licentious Impudence.

Seeing

Seeing then these *Accessory Ideas* are of so great importance, and dissolve the *Primary Notions* into many various *Ideas*, they would do well, who compile *Vocabularies* or *Dictionaries*, to mark out those Significations, and make a distinction to the Readers, between words Contumelious and Civil, Fart, Chast and Immodest, or rather absolutely to obliterate the Latter, which it would be much better to be ignorant of, than to understand.

The End of the First Part.

The first of these is the fact that the
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 out its policy of non-interference.

LOGIC:

OR, THE

ART

OF

THINKING

*Containing Considerations of Men about
Proper Judgments.*

PART II.

CHAP. I.

*What a Proposition is? Of the four sorts of
Propositions.*

After we apprehend the Things themselves;
by the help of *Ideas* we compare the *Ideas*
together, and observe them as they agree
or differ one among another, and in that manner
join

join or separate them, which is call'd to affirm or deny, and by a general Name to judge.

This Judgment is otherwise call'd a Proposition, and it is manifest that it ought to have two Terms, the one, of which any Thing is affirm'd or deny'd, which is called the *Subject*; the other, which is affirm'd and deny'd, which is call'd the *Attribute* or *Predicate*.

Nor does it suffice to have apprehended the two Terms, but they must be conjoined or separated in the Mind. And this Operation of the Mind is noted in the Proposition, by the word *Est*, when it is alone, it is Affirmative; but when it is deny'd, we add the Particle *non* or *not*: Thus when I say, *God is just*, *God* is the Subject of the Proposition, *just* the Predicate. The Verbs *is*, denote the action of the Mind affirming, that is conjoining the *Idea* of *God*, and the *Idea* of *just*, as agreeing together. But if I should say, *God is not unjust*, the Verb *is*, with the Adverb join'd, denotes an action contrary to affirmation; by which I affirm that the *Ideas* do not agree together; for that there is something in the *Idea* of *unjust*, which does not agree with that which is contain'd in the *Idea* of *God*.

But though it be necessary that every Proposition should consist of these three words, yet it may consist of two, and sometimes only of one.

For Men, for the more succinct way of speaking, have invented several words, which signify both the Affirmation, that is the Substantive, and the Attribute which is affirm'd. Of this number

are all those words that are called Substantives, as *God exists*, that is, *is existent*; *God loves Men*, that is, *He is a lover of Men*; but the Substantive, when it is single, ceases to be purely Substantive; for that then the most general of the Attributes, is joined to it, which is *Ens*, or *being*, and so *non ego sum*, *I am not*, is as much as, *I am not a being, or any thing*.

In the same manner at other times, the Subject and the Affirmation is included in the same word, as in the first and second Persons among the Latins, as when I say, *sum Christianus*, *I am a Christian*; for *ego* is the Subject of this Proposition, included in the word *sum*.

Hence it is apparent, that one word among the Latins constitutes a Proposition, in first and second Persons of those Verbs, which before contained the affirmation with the Predicate; so *veni*, *vidi*, *vici*, are three intire Propositions.

Hence it may also be concluded, that every Proposition is either Negative or Affirmative; and this is that which is contained either in the affirmation or the denial.

But there is another difference of Propositions deduc'd from the Universality, Particularity or Singularity.

For the Terms, as is said in the first part, are either singular, particular or universal.

Universal Terms may be taken, either according to the full Extent, the signs of Universality being either express'd or understood. As are *all*, for
an

an Affirmation, for denial *none*, as *all Men*, *Men*; or according to the indefinite part of the Extent, with the Addition of the word *some*, as *some Men*, *some Man*; or any other way, according to the propriety of Speech.

Hence happens a certain variety, greatly to be observ'd in Propositions; for when the Subject of the Proposition is the Universal Term, taken in its full Extent, it is call'd a universal Proposition, whether it be affirmative; as every impious Man is a Fool; or negative, no wicked Man is blessed.

When the common Term is taken according to the indefinite part of its Extent, as being restrained by the addition of the word *some*, it is call'd a particular Proposition, whether it be affirmative, *some cruel Men are Cowards*; or negative, *some Men are not miserable*.

But if the Subject of a Proposition be singular, when I say *William the 3d. hath taken Rachel*, it is called singular.

But though this Proposition singular be different from the Universal in this, that the Subject of it is not common, yet has it a greater Affinity with it, than with the particular, because the Subject of it for the very Reason that it is singular, is necessarily taken in its full Extent, which is the Essential Propriety of an Universal Proposition, and distinguishes it from the particular; for, that a Proposition may be Universal, it little imports, whether the Extent of the Subject be great or small, provided it comprehends all Things: And this is the Reason that

that singular Propositions supply the place of Universal in Argumentation; so that all Propositions may be reduced to four sorts; which are marked by these four Vowels *A. E. I. O.* for the ease of the Memory.

A. An universal Affirmative, as, *All vicious Men are Slaves.*

E. An Universal Negative, as, *No vicious Man is Happy.*

I. A particular Affirmative, as, *Some vicious Man is Rich.*

O. A particular Negative, as, *Some vicious Man is not Rich.*

And that they may be the better retain'd in memory, they are comprehended in this Distic.

*Afferit A, negat E, verum generaliter ambo:
Afferit I, negat O, sed particulariter ambo.*

They are wont also to call Quantity, the universality, or particularity of Propositions.

And Quality is called the Affirmation or Negation, which depend upon the word which is accounted the Form of the Proposition.

And so *A* and *E* agree according to quantity, but differ according to quality, as do also *I* and *O*.

But *A* and *I* agree according to quality, but differ according to quantity, as also do *E* and *O*.

Propositions are also divided according to matter, into true or false; and it is clear, that there can be no Proposition, which is neither true nor false; for that

that every Proposition declaring the Judgment which we make of Things, it is true, when the Judgment is conformable to Truth, and False when it is not conformable.

But because we often fail of sufficient Light, to discern Truth from Falshood, besides those Propositions that seem to be true, and those that seem to us to be false, there are some that seem to be true; but of which the Truth is not so evident, but that we have some apprehension that they may be false; or else such as seem to be false; but of the Falshood of which we are not fully assured. These are called probable Propositions, of which the first are more probable, and the latter less probable.

CHAP. II.

Of the Opposition of Propositions, having the same Subject and Predicate.

WE have already declared, there are four sorts of Propositions, *A, E, I, O.* Now it may be demanded wherein they agree or differ, when several sorts of Propositions are deduced from the same Subject, and the same Attribute, which is called Opposition.

It is easily seen, that there can be but three sorts of Oppositions; though one of the three is subdivided into two others.

For

For if they be opposed in quantity and quality both together, *A O* and *E I*, they are called *Contradictories*; as, *Every Man is an Animal*; *Some Man is not an Animal*: *No Man is free from sin*; *Some Man is free from sin*.

If they differ in Quantity only, and agree in Quality, as *A I* and *E O*, they are call'd *Subalterns*. As *Every Man is a Creature*, *some Man is a Creature*: *No Man is free from sin*; *some Man is not free from sin*.

But if they differ in Quality, and agree in Quantity, then they are called *Contraries* or *Subcontraries*: *Contraries*, when they are *Universal*; as, *Every Man is a Creature*, *No Man is a Creature*.

Subcontraries, when they are particular: *Some Man is a Creature*; *Some Man is not a Creature*.

Now if these Propositions are look'd upon as they are true or false; it is easie to judge.

That *Contradictories* are never together either true or false; but if one be true, the other is false; and if one be false, the other is true: For if it be true, that every Man is a Creature, it cannot be true, that some Man is no Creature: On the other side, if it be true that some Man is no Creature, it cannot be true that every Man is a Creature.

This is so clear that a farther Explanation would but render it more obscure.

2. *Contraries* can never be probable, but they may be both false. They cannot be true, because then *Contradictories* would be true; for if it be true

true that every Man is an Animal, it is false that some Man is not an Animal, which is the Contradictory, and by consequence, much more false, that no Man is an Animal; which is its contrary.

But the Falsity of the one does not infer the Falsity of the other; for it may be false, that all Men are just, and yet it may not be true, that no Man is just; since there may be just Men, though all Men are not so.

3. Subcontraries, by a Rule altogether opposite to that of Contraries may be probable, as in these two Propositions. *Some Man is just; some Man is not just*; for Justice may agree with some sort of Men; and not with the other. And therefore Affirmation and Negation never happen in the same Subject; for *some Man* is taken for one part of Men in one part of the Proposition, and for another part in the other. But they cannot be both false; for if it were false, that *some Man is just*, it would be true, that *no Man is just*, which is the Contradictory, and much more true, that *some Man is not just*, which is the Subcontrary.

4. As for the opposition of Subalterns, it is not true Opposition, because the particular is the Consequence of the Universal; for if *all Men are Creatures*, *some Man is a Creature*: If *no Man be an Ape*, *some Man is not an Ape*: Therefore the Truth of Universality infers that of Particulars; but the Truth of Particulars does not infer that of Universals; for it does not follow, because it is true, that *some Man is just*, that

that it should be true, that *all Men are just*: On the other side the Falshood of Particulars infers the Falshood of Universals; for if it be false that some Man is free from Sin, it is more false that all Men are free from Sin: But the Falshood of Universals does not infer the Falshood of Particulars; for tho it be False, that all Men are just, yet it does not follow, but that some Man may be just. Whence it follows, that many times *Subaltern Propositions* may both happen to be true, and sometimes both to be false.

I forbear to speak of the Reduction of opposite Oppositions to the same Sence, as being altogether unprofitable, and for that the Rules are only true in the Latin.

CHAP. III.

Of Propositions simple and compos'd; That there are some which seem to be simple, but are not, and which may be called complex. Of complex Propositions, both as to the Subject and Attribute.

WE have said, that every Proposition ought to have at least, one Subject and one Attribute; but it does not follow from thence, that it ought not to have no more than one Subject and one Predicate.

dicare. Such then as have but one Subject and one Attribute are call'd simple, and they that have more than one Subject and one Predicate are call'd Compos'd. As when I say Good and Evil, Life and Death, Poverty and Riches come from the Lord. The predicate, *Come from the Lord* is affirmed not only of one Subject, but of many, that is of *Good and Evil, &c.*

But before we explain the compos'd Propositions, we must observe that there are some which seem to be compos'd that are not so, but Simple. For the singleness of a Proposition is taken for the Unity of the Subject and the Attribute. Now there are several Propositions that have properly but one Predicate and one Attribute; but of which either the Subject or the Attribute is a Term complex, which includes other Propositions, that may be call'd *Incident*, which make no part of the Subject or Predicate, being join'd by the Pronoun Relative, *who* or *which*, whose Propriety it is to join together several Propositions, to the end they may all incorporate into one.

Thus when Christ says, *He that does the will of my Father who is in Heaven, shall enter into the Kingdom of Heaven.*

The Subject of this Proposition contains two Propositions, as containing two Verbs; but in regard they are join'd by the Relative *who*, they only make a part of the Subject. Whereas when I say, good and evil proceeds from the Lord, there are properly two Subjects, because I affirm equally both

both of the one and the other, that they come from God.

The Reason is this, for that the Propositions being join'd to others by the Relative, *who*, are either Propositions but imperfectly, as shall be said hereafter, or else are not consider'd as Propositions then made, but as Propositions that have been made before, which are at that time only conceiv'd like single *Ideas*. Whence it happens to be the same thing, whether we pronounce these Propositions by Noun-Adjectives, or by Participles without Verbs, and without the Relative, *who* ; or with Verbs and with the Relative. For it is the same thing to say, *The invisible God has created the visible World* ; or *God who is visible, has Created the World which is visible*. *Alexander the most valiant of Princes vanquish'd Darius, or Alexander who was most valiant of Princes, vanquish'd Darius*. For as well in the one as the other, my principal aim is, not to affirm that God is Invisible, or that *Alexander* was the most generous of Princes ; but supposing both the one and the other is affirmed before, I affirm of God, conceived as Invisible, that he Created the visible World ; and of *Alexander* conceived to be the most generous of Princes, that he vanquish'd *Darius*.

But if I should say, *Alexander was the most valiant of Princes, and the Vanquisher of Darius*, 'tis evident that I should no less affirm of *Alexander*, both that he was the most Valiant of Princes, and that he was the Vanquisher of *Darius* ; and therefore there is good Reason that the latter sort of Propo-

sitions should be called composed Propositions; whereas we may call the other Propositions complexed.

We are also to observe, that complexed propositions may be of two sorts. For Complexity, if I may so call it, may light either upon the matter of the proposition, that is to say, upon the Subject or the predicate, or both; or else upon the Form only.

1. Complexity falls upon the Subject, when the Subject is a Term Complexed, as in this proposition. *He is a King who fears nothing.*

*Beatus ille qui procul negotiis
Ut prisca gens Mortalium,
Paterna Rura bobus exercet Suis
Solutus omni fœnore.*

For the Verb *Est* is understood in the last proposition; *Beatus* being the predicate, and all the rest the Subject.

2. Complexity falls upon the Attribute, when the Attribute is a Term complex'd, as *Piety is a Vertue that renders a Man happy in the greatest Advantages.*

Sum Deus Æneas, fama super æthera notus.

But here we must observe that all propositions composed of Verbs active, and their cases govern'd, may be called Complex, as containing in some manner

manner two Propositions. For Example, if I say, *Brutus* kill'd a Tyrant, this is as much as to say, that *Brutus* killed some body, and that he whom he killed was a Tyrant; which is very remarkable to be observed; for when these Propositions are urg'd in Arguments, sometimes there is but one part proved, the other being supposed, by which we are frequently obliged to reduce those Arguments into the most natural Form, and to change the Active into the Passive, to the end, that the part which is proved may be directly expressed; as we shall shew when we come to Discourse of Arguments compos'd of complex Propositions.

3. Sometimes Complexity falls upon both Subject and Predicate, both the one and the other being a complex Term, as in this Proposition. *The Great ones who oppress the Poor, shall be punish'd by God, who is the Protector of the Poor.*

*Ille ego, qui quondam gracili modulatus avena
Carmen, & egressus sylvis, vicina coegi,
Ut quamvis avido parerent arva Colono :
Gratum opus Agricolis ; ut nunc horrentia Martis
Arma, virumque cano, Troje qui Primus ab oris
Italiam, fato profugus, lavinaque venit
Littora.*

The first three Verses, and the half of the fourth, compose the Subject of this Proposition, and the rest makes the Predicate, and the Affirmation is included in the word *Cano*.

These are the three ways that Propositions may be complexed as to their Matter, that is to say, both as to the Subject and the Predicate.

CHAP. IV.

Of the Nature of Incident Propositions, that make a part of Propositions Complex'd.

BUT before we speak of Propositions, whose Complexity may fall upon the Form, that is to say, upon the Affirmation or Negation, there are several important Remarks to be made upon the nature of *Incident* Propositions, which make one part of the Subject or Attribute of those that are complex'd according to matter.

1. It has been already said, that *Incident* Propositions are those whose Subject is the Pronoun, *who*, as, *Men who are created to know and love God*; or, *Men who are pious*, where the Term *Men* being taken away, the rest is an *Incident* Proposition:

But here we must call to Mind what has been said in the sixth Chapter of the first Part. That the Additions of Terms complex'd are of two sorts, the one may be call'd simple Explications, when the Addition alters nothing in the *Idea* of the Term, in regard that what is added, agrees generally with the Term in its full extent; as, *Men who are created to know and love God*.

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The other may be called Determinations ; for that what is added to the Term not agreeing with it in its full Extent, restrains and determines the Signification, as in the second Example, Men who are Pious. From whence it follows that there is a Pronoun, *Who*, *Explicative*, and a Pronoun (*Who*) *Determinative*.

Now when the pronoun (*who*) is *Explicative*, the attribute of the *Incident* proposition is affirmed of the Subject, to which the pronoun (*who*) refers ; tho it be but incidently, in respect of the total proposition ; so that the Subject it self may be substituted to the pronoun (*who*) as in the first Example, *Men who were created to know and love God*. For we might say, *Men were created to know and love God*.

But when the (*who*) is *Determinative*, the predicate of the incident proposition, is not properly affirmed of the Subject to which the (*who*) refers. For if in this proposition, *Men who are Pious are Charitable*, we should put the word *Men* in the place of (*who*) by saying, *Men are Pious*, the proposition would be false, for this would be to affirm the word (*Pious*) of Men, as Men. But in the other proposition, *Men who are Pious are Charitable*, we affirm neither of Men in general, nor of any Man in particular, that they are pious ; but the Understanding joining together the *Idea* of (*Pious*) with that of *Men*, and making an entire *Idea*, judges, that the attribute of *Charitable* agrees with the entire *Idea*. And therefore the entire Judgment which is expressed in the incident pro-

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position

position is only that, by which our Understanding judges, that the *Idea* of *Pious*, is not incompatible with that of *Men*, and so they may be considered as joined together ; and afterwards we may examine how they agree together, being thus united.

Many times there are *Terms* that are doubly and trebly Complexed, being composed of several parts, of which every one is separately complexed ; and so we may meet with several *incident* propositions, and of several sorts ; the pronoun of the one being *Explicative*, and the other *Determinative*, as in this Example. *The Doctrine that places Sovereign Happiness in the Pleasures of the Body, which was taught by Epicure, is unworthy a Philosopher.* The attribute of this proposition is *Unworthy a Philosopher*, and all the rest is the Subject : And so the proposition is a complex Term that includes two incident propositions. The first, *That places Sovereign Happiness in the Pleasures of the Body*, where the pronoun is determinative ; for it determines (*Doctrine*) in general to be that which affirms Sovereign Felicity to consist in the pleasures of the Body ; whence it would be an absurdity to substitute the word *Doctrine* to the pronoun, by saying, *Doctrine places Sovereign Happiness in bodily Pleasure.*

2. The second incident proposition is, which was taught by *Epicurus*, and the Subject where the pronoun [*which*] refers, is the whole complex Term [*The Doctrine which places Sovereign Happiness in bodily Pleasure*] which denotes a singular and individual *Doctrine*, capable of divers Accidents ;

as to be maintained by several persons: though in its self it be determined to be taken always after the same manner, at least in this precise case, as it is extended. And therefore it is, that the Relative of the second *incident* proposition [which was taught by *Epicurus*] is not determinative but only explicative; so that the Subject to which the Pronoun refers may be substituted in the place of the pronoun, by saying, *The Doctrine which places Sovereign Happiness in bodily Pleasure, was taught by Epicurus.*

3. The last remark is, that to judge of the Nature of these propositions, and to know whether it be determinative or explicative, it behoves us to mind rather the Sence and Intention of him that speaks, than the Expression alone.

For there are many times complex'd Terms, that seem uncomplex'd; or less complex'd than indeed they are; for that one part of what they enclose in the mind of him that Discourses, is altogether understood and not expressed, as has been said in the sixth Chapter of the First Part, where we have shown that there is nothing more usual in Discourse, than to signifie singulars by general words, for that the Circumstances of Discourse make it appear that there is a singular and distinct *Idea*, joyn'd to that common *Idea* which answers to the word, that determines it to signifie only one thing.

I said that this was generally known by the Circumstances, as in *English*, the Word *King* signifie *William III.*

But there is yet a Rule that may serve us to judge, when a common Term retains a general *Idea*, and when it is determin'd by a distinct and particular *Idea*, though not express'd.

When it is a manifest Absurdity to apply a Predicate to a Subject, retaining a general *Idea*, we must believe that he who made that *Proposition*, has depriv'd that Subject of it's general *Idea*. Thus if I hear a Man say, *the King has commanded me such a thing*, I am assur'd that he has not left the word *King* in it's general *Idea*; for a King in general gives no particular Command.

If a Man should say to me, *The Brussel's Gazette of the 24th. of January 1692. is false as to what was transacted at Paris*, I should be assur'd, that there was something more in the mind of him that spoke, than what was express'd in those Terms. For those words are not sufficient to make me judge whether the Gazette be true or false: So that the Relator must have in his thoughts some piece of News distinct and particular, which he judges contrary to the Truth; as if the Gazette had related, *that the King had made a hundred Knights of the Order of the Garter*.

Also in such Judgments as are made of the Opinions of Philosophers, when we say, that the Doctrine of such a Philosopher is false, without expressing distinctly what that Doctrine is, as (the Doctrine of *Lucretius*, touching the Nature of our Soul is false) it necessarily follows, that in such sorts of Judgments they who make them, do mean distinct and particular Opinion under the general

general words (Doctrine of such a Philosopher.) And so such sorts of propositions dissolve into others like to these. *Such an Opinion that was maintain'd by such an Author is false. The Opinion that our Soul is composed of Atoms, which was taught by Lucretius is false.* So that these kinds of Judgments always enclose two Affirmations, when they are not distinctly expressed. The one primary which relates to the Truth it self; which is, that it is a great Error to believe that our Soul is composed of Atoms; the other *Incident*, which refers only to the Historical part; that this Error was generally taught by *Lucretius*.

CHAP. V.

*Of the Falshood that occurs in Complex Terms
and Incident Propositions.*

WHAT we have already said may serve in answer to one celebrated Question, how to know whether there be no Falshood but in propositions, and whether there be none in *Ideas* and simple Terms.

I speak of Falshood, rather than of Truth; for there is a Truth in Things that is certain, which is their Conformity to the Will of God, whether Men think of them or not; but there can be no Falshood of Things, but as they relate to the Un-

derstanding of Man, or any other understanding subject to errors, which judges falsely that a thing is that which it is not.

The Question is, whether this falshood is only to be met in Propositions and Judgments.

The usual answer is, no ; which is true in one sense ; however that hinders not, but that there may be falshood; not in single *Ideas*, but in complex Terms. For it is sufficient, that something may be judg'd or affirm'd in them, either expressly or virtually.

Which will be more plain, if we consider particularly two sorts of complex Terms ; the one, of which the Pronoun is explicative, the other of which it is determinative.

In the first sort of Complex Terms, we are not to wonder if we find any falshood. For the attribute of the Incident Proposition, is affirm'd by the Subject to which the Pronoun relates. As in *Alexander who is the Son of Philip*, I affirm, though incidently, the Son of *Philip* of *Alexander* ; and by consequence there is a falshood in it, if it be not so.

But here we are to make two or three remarks of moment.

I. That the falsity of an *Incident Proposition* does not blemish the truth of the *Principal Proposition*.

For example, *Alexander who was the Son of Philip, overcame the Persians* : This proposition ought to pass for true, though *Alexander* were not the Son of *Philip* ; because the affirmation of the principal

pal Proposition, falls only upon *Alexander*, and what is incidently added, does not hinder, but that *Alexander* might vanquish the *Persians*.

Nevertheless, if the attribute of the principal proposition, had relation to the incident Proposition, as if I should say, *Alexander the Son of Philip was Amintas's Grandchild*: Then would it only be, that the falshood of the incident proposition, would render the principal proposition false.

2. Titles that are given to certain Dignities may be given to all that possess that Dignity; though what is signify'd by the Title, do not at all agree with 'em. Thus because the Titles of *Holy*, and *Thrice Holy*, was formerly given to all Bishops, we find, that the Catholic Bishops at the Conference of *Carthage*, did not scruple to give that Title to the *Donatist* Bishops (*the most Holy Petilian said it*) though they knew well that there could be no true Holiness in a Heretic Bishop. We find also, that *S. Paul* gives the Title of *best and most excellent* to *Festus* Governor of *Judea*, because it was the Title usually given to the Chief Governours.

3. But it is not so, when a Person is the Author of a Title which he gives to another, and which he gives according to his own, and not the opinion of others, or according to popular error; for then we may impute to himself the falshood of such proposition. Thus when a Man says, *Aristotle, who is the Prince of Philosophers*, or simply, *The Prince of Philosophers*, believ'd that the Original of the Nerves was in the Heart; we have no reason

to tell him this is false, because *Aristotle* was not the best of Philosophers; for it is enough that he has follow'd in this the common opinion, though it were false. But if a Man should say, That *Gassendus*, who is the most Learned of Philosophers, believed that there was a Vacuum in nature; we may with reason dispute the Title which he would give *Gassendus*, and make him responsible for the falshood, couc'd in that incident proposition. A Man may be also accus'd of Falshood, who gives to the same person a Title which is not suitable to him, yet not be blamed for giving him another Title, which is less true and less agreeable. For example, *Pope John the XII. was neither Holy, nor Chaste, nor Pious*: As *Baronius* acknowledges; for tho they who called him *most Holy* could not be taxed of falshood, yet they who called him *most Chaste* and *Pious*, were very great Liars, though they did it by Incident Propositions; as if they had said, *John the XII. the most Chast Pope, decreed such a thing.*

This is what I had to say concerning incident Propositions, where the Pronouns (Who or Which) are explicative; as to those other where the Pronouns are determinative, as *Men who are Pious, Kings who love their Subjects*, certain it is, they are not liable to falshood, because the predicate of the Incident proposition is not affirmed of the Subject to which the pronoun relates. For example, should it be said; *That such Judges as do nothing for favour or reward, are worthy of applause*, it is not therefore affirmed, that there are any such Judges, who

who are so upright. Nevertheless I believe there is always in these propositions a tacit and virtual Affirmation, not of the actual Congruity of the Predicate, with the Subject to which the pronoun renoun relates; but of the possible Congruity. And if there be any deceit in this, we may rationally conclude there is a falshood in the Incident propositions. As if it had been said, *Souls that are square are more solid than those which are round*; here the *Ideas* of Square and Round being Incompatible with the *Idea* of a Soul, taken for the principle of Thought, I judge that those Incident propositions ought to pass for false.

And hence it may be said, that the greatest part of our errors proceed. For having the *Idea* of a thing we frequently join to it another incompatible *Idea*, and by that means attribute to the same *Idea*, that which is not suitable to it.

Thus finding in our selves two *Ideas*, one of the thinking Substance, another of the extended Substance, it frequently happens, that when we consider our Soul, which is the thinking Substance, we insensibly intermix something of the *Idea* of the extended Substance, as when we imagin that the Soul fills up a space like the Body; and that it could not be at all if it were no where, which are not Properties that belong to a Body: Whence arose that Impious Error of the Mortality of the Soul. We may read an excellent Discourse of St. *Austin* upon this Subject, in his Tenth Book of the *Trinity*; where he shews that there is nothing so easie

as to know the nature of our Soul. But that which confounds men is this, that being desirous to know it, they are not satisfied with what they know, without any great trouble ; that is to say, that it is a Substance that thinks, desires, doubts and knows ; but they add to what it is, what it is not, fancying the Soul under some of those Phantoms, under which they were wont to conceive Corporal things.

On the other side, when we consider Bodies, we have much ado to abstain from intermixing something of the *Idea* of the Substance that thinks, hence we affirm that heavy things tend to the Center ; of Plants, that they seek for proper nourishment ; of *Crisis's* in Diseases, that it is nature that goes about to discharge it self of what is baneful, and a thousand other Whimsies. More especially in our Bodies, that Nature has an Inclination to do this or that ; when we are assured that we have no such desire, nor ever had any such thought, and that it is ridiculous to imagin, that there is within us any other thing than our selves, that knows what is good or hurtful for us, that desires the one, and eschews the other.

I believe moreover that we are to attribute to these incompatible *Ideas*, all those murmurings of Men against the Deities ; for it would be impossible to murmur against God, if we conceiv'd him aright : as he is, altogether Wise, Omnipotent and all Goodness. But the Ungodly considering him as Omnipotent, and the Sovereign Lord of all

all the World, attribute to him all the misfortunes that befall 'em, wherein they are not deceiv'd; but because at the same time they apprehend him to be cruel and unjust, which is incompatible with his goodness, they impiously inveigh against him as the Author of the miseries which they suffer.

CHAP. VI.

Of Complex Propositions, according to Affirmation and Negation: of one sort of those kinds of Propositions which the Philosophers call Modal.

BESIDES those Propositions where the Subject or Attribute is a Term Complex, there are also others that are Complex; because there are Terms or incident Propositions, which only regard the form of the Proposition, that is, the Affirmation or Negation which is express'd by the Verb; as if I should say, *I affirm that the Earth is round.* Here *I affirm*, is only an incident Proposition, which ought to make a part of something in the principal Proposition. Nevertheless it is visible that it makes no part either of the Subject, or of the Attribute: for they suffer no alteration, as being understood as entirely, as if I should simply aver, *the Earth is round.* So that the incident Proposition falls

falls only upon the Affirmation which is expressed in two manners ; the one most commonly by the Verb [*Est*] *the Earth is round* ; and the other expressly by the Verb I maintain.

So when they say, I deny it, it is true ; it is not true. Or when they add in one Proposition that which supports the Truth ; as when I say *The Reasons of Astronomy convince us, that the Sun is much bigger than the Earth*. For the first part is only a support of the Argument.

Nevertheless it is of great Moment to know that there are a sort of these Propositions which are Ambiguous, and which may be taken differently, according to the design of the Propounder. As when I say, *all Philosophers assure us, that heavy things fall of themselves*. Now if it be my Intention to shew that heavy things fall down of themselves, the first part of this Proposition will be only Incident, and will only support the affirmation of the latter part. But if I intend to report this opinion of the Philosophers, without approving it, then the first part will be the principal Proposition, and the last will only be a part of the Attribute. For so I affirm not only that heavy things fall of themselves, but that all Philosophers assert it. And it is easily seen that these two ways of changing the Proposition, alter it in manner, that it becomes two different Propositions, and different in Sense. But it is easie to judg by the Consequence, in which of the two Senses the Propositions are to be taken. For Example, the Proposition being laid down,

down, I should add ; But Stones are heavy, therefore they fall down of themselves , would be plain that I had taken the first Sence, and that the first part was only Incident. On the other side, if I should conclude thus, Now this is an Error, and by consequence an Error may be taught by the Philosophers, then it would be manifest that I had taken the Proposition in the second Sence ; that is, that the first part will be the principal Proposition, and the second part only the predicate.

As for Complex Propositions, where the Complexity falls upon the Verb, and not upon the Subject, nor the Predicate, Philosophers have particularly taken notice of those that are called *Modal* ; because the Affirmation or Negation is modified by one of the four Modes, *Possible, Contingent, Impossible, Necessary*.

And because every Mode may be affirm'd or denied, as *it is possible, it is not possible*, and in both manners be join'd with the Affirmative or Negative Proposition, every Mode may have four Propositions, and the four together sixteen, which are denoted by these four words, *PURPUREA, ILLICE, AMABIMUS, EDENTULI* ; of which this is the Mystery. Every Syllable marks one of the four Modes.

- | | |
|----------------|----------------|
| 1. Possible. | 3. Impossible. |
| 2. Contingent. | 4. Necessary. |

And

And the Vowels in every Syllable, which are A. E. I. or U. denotes whether the Mode be affirm'd or denied, and whether the Proposition which they call the *Thing said*, ought to be denied or affirm'd in this manner.

A. The Affirmation of the Mode, and the Affirmation of the Proposition.

E. The Affirmation of the Mode and Denial of the Proposition.

I. The Denial of the Mode, and Affirmation of the Proposition.

U. The Denial of the Mode, and Denial of the Proposition.

It would be lost time to produce Examples, which are easily found out. We are only to observe, that *PURPUREA* answers to the A. of Propositions Incomplex. *ILIACE* to the E. *AMABIMUS* to the I. *EDENTULI* to the U. So that if we intend the Example should be true, having chosen a Subject, we must take for *Purpurea* an Attribute that may be universally affirm'd. For *Iliace*, one that may be universally denied. For *Amabimus*, one that may be affirm'd particularly, and for *Edentuli*, one that may be denied particularly.

But whatever Predicate we take, this is always certain, that all the four Propositions of the same word have always the same Sense, so that one being true, all the rest are true.

CHAP. VII.

Of several sorts of Composed Propositions.

WE have already said, that composed Propositions have either a double Subject, or a double Predicate. Now of these there are two sorts. One where the Composition is expressly mark'd; the rest where it lies more concealed, and which the *Logicians* for that reason call *Exponible*; which require Exposition or Explanation.

Those of the first sort may be reduced to Six Kinds, Copulatives, Disjunctives, Conditional, Causal, Relative and Discretive.

COPULATIVES.

We call Copulative those that include several Subjects or several Attributes join'd together by an Affirmative or a Negative Conjunction; that is to say, (*and*) or (*neither*.) For (*neither*) does the same thing as (*and*) in these sorts of propositions; for that (*neither*) signifies [*and*] with a Negative which falls upon the Verb, and not upon the Union of the two words which it joins; as if I should say, *That Knowledge and Riches do not make a Man happy.* Here I unite Knowledge and Riches, affirming of both that they do not make a Man happy, in the same manner as if I should have said,

That

That Knowledge and Riches render a Man Vain-glorious

These propositions may be distinguished into three sorts.

1. When they have more Subjects.

Life and Death are in the power of the Tongue.

2. When they have several Predicate

*Auream quisquis mediocritatem
Diliger, tutus caret obsoleti,
Sordibus Tecti, caret invidenda,
Regibus Aula.*

A well Compos'd Mind hopes for good Fortune in bad, and fears not bad fortune in Prosperity.

3. When they have several Subjects and several Attributes.

*Nor House, nor Land, nor heaps of Brass or Gold,
From the Sick Lord a Fever can withhold,
Nor anxious cares repel. ———*

The truth of these Propositions depends upon the truth of both the two parts. Thus if I say that Faith and a good Life are necessary to Salvation, this is true, because both the one and the other is necessary. But should I have said, a good Life and Riches are necessary for Salvation, this is a false Proposition, because Riches are not necessary for Salvation.

Pro:

Propositions that are considered as Negatives, and contradictory in respect of Copulatives and all others composed, are not all such, where Negations occur, but only such where the Negation falls upon the Conjunction, which happens several ways, as by putting the [*Not*] at the head of the proposition. Thou dost not love, and forsake thy Friend.

For thus it is, that a proposition is made Contradictory to the Copulative, by expressly denying the Conjunction; as when we say that it cannot be, *That a thing should be this and that at the same time.*

That a Man cannot be wise and love at the same time.

Amare & sapere vix Deo conceditur.

That Love and Majesty do not accord well together.

Non bene conveniunt, nec in una sede Morantur Majestas & Amor.

Of Disjunctives.

Disjunctives are of great use; and these are they, wherein the disjunctive Conjunction [*or*] is found.

Amity either finds Friends equal, or makes them e-

A Woman either loves or hates; there is no medium.

Aut

Aut amat, aut odit mulier, nihil est tertium.

He that altogether lives in Solitude, is either Beast or an Angel, says *Aristotle*;

*Men are guided either by Interest or Fear,
Either the Sun moves about the Earth, or the Earth
about the Sun.*

Every Action proceeds from good or bad Judgment.

The truth of these propositions depends upon the necessary Opposition of the parts, which admits no Medium. But as they ought to admit a Medium, that they may be necessarily true; that they may be only morally true, it suffices that they do not usually admit a Medium. And therefore it is absolutely true, That an Action done without Judgment is either good or bad, the *Theologians* making it manifest that there is nothing in particular that is untrue. But when they say, that Men never act but by Interest or Fear; this is not absolutely true, since there are some who are led neither by the one or the other of these passions, but merely upon the consideration of their Duty: So that the main Truth of this proposition lies in this, That the greatest part of Men are govern'd by these two Affections.

Propositions contradictory to disjunctives are all those where the Truth of the Disjunction is denied. Which among the *Latins* (as in all other composed propositions) by putting the Negative at the

head of the proposition. *Non omnis actio est bona
et mala:* and in *English*, It is not true, that every
action is good or bad.

Conditionals.

Conditionals are such as have two parts bound
by the condition (*if*) of which the first where
the condition lies, is called the Antecedent; and the
other the Consequent. *If the Soul be Spiritual,* is the
Antecedent; *it is Immortal,* is the Consequent.

This Consequence is sometimes mediate; some-
times immediate: It is only mediate, when there is
something in the Terms that binds both parts toge-
ther; as when I say,

If the Earth stand still, the Sun moves,

If God be just, the wicked shall be punish'd.

The Consequences are very good, but they are not
immediate; for that the parts not having any com-
mon Term, are bound together by something
which is not expressed but reserved in the Mind;
so that the Earth, and the Sun being perpetually in
different Situations; necessarily it follows, that the
one is moveable, and the other immoveable.

When the Consequence is immediate, it is usu-
ally requisite.

1. Either that both parts have the same Subject.

*If Death be a passage to a more happy Life, it is de-
sirable.*

If

If you have failed to feed the Poor, you have killed the Poor.

2. Or that they have the same Predicate.

If whatever God inflicts upon us for Tryals sake, is to be dear to us.

Sickness ought to be dear to us.

3. Or that the Attribute of the first be the Subject of the second.

If Patience be a Virtue,

Some Vertues are irksome.

4. Or lastly, that the Subject of the first part be the Attribute of the second; which cannot be when the second part is Negative.

If all true Christians live according to the Gospel, There are no true Christians.

Here the Truth of the proposition is not regarded, but the Truth of the consequence. For if the one and the other part be false, nevertheless the consequence of the one, in respect of the other, be good, the proposition, as far as it is conditional, is true. As,

If the will of the Creature be able to hinder the accomplishing of God's will.

God is not Omnipotent.

Negative Contradictories are opposed to Conditionals, when the condition is deny'd; which among the *Latins* is done by prefixing the Negative —

— *Non si miserum fortuna Simonem*

Tinxit, vanum etiam mendacemque improba fixit.

But in English they are expressed by (altho) and Negative.

If you eat of the forbidden Fruit, you shall die.

Though you eat of the forbidden Fruit, you shall not

Or else by, It is not true ;

It is not true, that you shall die if you eat of the forbidden Fruit.

Of Causals.

Causals are those that contain two propositions join'd together by Conjunction of the Cause (because) or (to the end that.)

Woe to the Rich, because they have their Felicity in this World.

The wicked are advanced, to the end, that falling from high, their fall may be the greater.

They can, because they think they can.

Such a Prince was unfortunate, because he was not born under such a Planet.

Under these sorts of propositions may be also reduc'd those which are called *Reduplicatives*.

Men, as Men, are rational.

Kings, as Kings, are subject to none but God.

That these propositions be true, it is requir'd, that one of the parts should be the cause of the other ; whence it comes to pass, that both are true ; or that which is false is no cause, nor has it any cause why it should be. Yet both parts may be true, when the Causal is false. Thus a Prince may be Unfortunate and born under such a Planet :

I

Though

Though it be false that he was therefore Unfortunate, because he was born under such a Planet.

Therefore the contradictories of propositions chiefly consist in this, that one thing is denied to be the cause of the other.

Not therefore unhappy, because born under such a constellation.

RELATIVES.

Relatives are those that include some Comparison and some Relation.

Where the Treasure is, there is the Heart.

As he lived, so he died.

As much as thou hast, so much art thou worth.

Here the Truth depends upon the exactness of the Relation ; and they are contradicted by denying the Relation.

It is not true, that as he lived so he died.

It is not true, that a Man is esteem'd in this world according to what he has.

OF DISCRETIVES.

Discretives are those, where various Judgments are made, and this variety is denoted by the particles (but) (notwithstanding) or words of the nature, either expressed or understood.

Fortune may deprive me of my Wealth, but not my true.

I endeavour to set my self above things, but not to be subjected to them.

They who cross the Seas, change only their Country, but not their Disposition.

The Truth of these propositions depends upon the Truth of both parts; and the separation between them. For though both parts were true, a proposition of this sort would be ridiculous, if there were no opposition between them, as if I should say, *Judas was a Thief, and yet he took it ill that Mary Magdalen pour'd out her precious Oyniments upon Christ.*

There may be several Contradictories of a proposition of nature; as if one should say, *It is not upon Riches, but upon knowledge that happiness depends.*

Which proposition may be contradicted several ways.

Happiness depends upon Riches, and not upon Knowledge.

Happiness depends neither upon Riches nor Knowledge.

Happiness depends both upon Riches and Knowledge.

Thus we see that Copulatives are contradictories of Discretives. For these two last propositions are Copulative.

C H A P. VIII.

Of Propositions composed in Sence.

THere are other composed propositions, whose Composition is more conceal'd and intricate ; which may be reduced under four sorts.

1. *Exclusive*, 2. *Exceptive*, 3. *Comparative*, 4. *Receptive or Desitive*.

I. *Of EXCLUSIVES.*

Those are called *Exclusive*, which denote, that a predicate so agrees with his subject, as to agree with that alone, and no other. Whence it follows that they include two various Judgments, and by consequence are compos'd in Sence. Which is expressed by the word (*only*) or some such like words. Or in English, *There is none but God only, who is to be beloved for his own sake, all other Things are to be admired for the sake of God.*

Only those Riches which thou freely bestowest, shalt thou freely enjoy.

Virtue only makes Nobility, nothing else renders a Man truly Noble.

I know this only, that I know nothing, said the Academics.

Lucan speaking of the *Druids*, makes this *Disjunctive Proposition* composed of two *Exclusives*.

— you know
 The God and Heavenly Numens, you alone,
 Or else to only you they are unknown.

These propositions are contradicted three manner of ways:

1. By denying that the predicate agrees with the subject alone.

2. By affirming it agrees with something else.

3. By alledging it agrees with the one and the other.

Thus this proposition, *only Vertue is true Nobility*, it may be contradicted.

1. That Vertue does not make any one Noble.

2. That Birth renders a Man Noble as well as Vertue.

3. That Birth ennobles a Man, and not Vertue.

So the Maxim of the Academics, *this is only certain that there is nothing certain*, was variously contradicted by the Dogmatics and the Pyrronians. For the Dogmatics deny it, by maintaining that it is doubly false, because there are many Things that we know most certainly; and therefore it was not true, that we were certain that we knew nothing. And the Pyrronians averred that it was false, for the contrary reason, that every Thing was so uncertain, that it was uncertain whether any thing were certain.

And therefore there is a defect of Judgment in what Lucan speaks of the *Druids*; because there was no necessity, that only the *Druids* should be in the Truth, in respect of the Gods, or that they should only be in an Error. For in regard there were

fundry Errors, concerning the Nature of the Gods it might well be, that though the *Druids* had different Thoughts concerning the Gods, from those of other Nations, they were no less in an Error than other Nations. Here it is also to be observed, that there are propositions which are exclusive in Sense, though the exclusion be not expressed. As in this Verse of *Virgil*, where the Exclusion is marked out,

Una salus victis, nullam sperare salutem.

Thus luckily Translated into French, where the Exclusion is understood.

De salut des vaincus est de n'en point attendre.

The safety of the vanquished, is not to expect it.

Nevertheless, it is more usual in the *Latin* than *French*, to suppress Exclusions. So that there are some passages not to be Translated with all their force, without making Exclusive propositions, though in the *Latin* the Exclusion be not mark'd.

Thus 2 Cor. 10. 17. *Qui gloriatur, gloriatur Domino*; ought to be thus Translated, *Whoever rejoices, let him rejoice in the Lord.*

Gal. 6. 7. *Qua seminaveris homo, haec & metes*. A Man shall reap no more than what he has sown.

Ephes. 4. 5. *Unus Dominus, una fides, unus Baptismus*. There is but one God, but one Faith, but one Baptism.

Mat. 5. 46. *Si diligitis eos qui vos diligunt, quam mercedem habebitis?* If you love only those that love you, what recompence shall ye deserve?

Seneca in his *Troas*, *Nullas habet spes Troja, si tales habet*. If Troy has no other hope than this, it has none at all: As if the Latin had said, *Si tantum tales habet*.

2. OF EXCEPTIVES.

Exceptives are those where a Thing is affirm'd of the whole Subject, except some one of the Inferiors of the Subject, by adding a particle of Exception, which denotes that what is predicated, does not agree with that Inferior. Which visibly includes two Judgments, and renders those Propositions compos'd in Sence. As if I should say, *None of the Sects of the Antient Philosophers, except that of the Platonics, have acknowledged God to be incorporeal*.

Where two things are to be understood, 1. That the Antient Philosophers believed God to be Corporeal. 2. That the Platonics believed the contrary.

The covetous Man does nothing well, but when he dies.

No Man miserable, unless compar'd.

No Man is mischieft but by himself.

Except the wise Man, said the Stoics, all Men are truly Fools.

These propositions are contradicted as many ways as the Exclusive.

1. By affirming that the Stoics wise Man was as much a Fool as other Men.

2. By maintaining there were others, besides the Stoics wise Men, that were no Fools.

3. By alledging that the *Stoics* wise Man was Fool, and that others were wise Men.

We are farther to observe, that the exclusive exceptive Propositions are the same thing, only pressed after a different manner, so that with little difficulty they may be changed the one into the other. And thus we see that this exceptive of *rence*.

The Ignorant thinks nothing well done but what he does himself.

Was changed by *Cornelius Gallius* into this exclusive. *That, only right he thinks, which he does himself.*

OF COMPARATIVES.

Propositions, where a comparative is designed, include two Judgments. For it is one thing to say a Thing is such a Thing, and to say that it is more or less than another : By which means these Propositions become composed in Sense.

The greatest of Losses is to lose a Friend.

Many times a pleasing Raillery makes a deeper Impression in the most important Affairs, than the best of Reason.

Less hurtful are the wounds of a Friend, than the deceitful Kisses of an Enemy.

These Propositions are contradicted several ways, as that maxim of *Epicurus*, *Pain is the greatest of Evils*, was contradicted one way by the *Stoics*, and in another manner by the *Peripatetics*, while some *Peripatetics* aver'd, that pain was an evil ; but the *Stoics* likewise maintain'd that Vice and other Irregularities

of the Mind were far greater Evils than Pain. On the other side the *Stoics* would not allow pain to be an Evil, so far were they from acknowledging it to be the greatest of all Evils.

But here it may be disputed, whether it be always necessary that in these propositions the positive of the Comparative, should agree with both the Members of the Comparison; for Example, whether we ought to suppose two Things to be good, that we may aver the one to be better than the other?

It seems at first that it should be so; but we find otherwise in practice; for we see the Scriptures make use of the word *better*, not only in comparing two good Things together: *Better is Wisdom than strength, and a prudent Man than a strong Man.*

But also in comparing a Good with an Evil, *Better the patient than the proud Man.*

And sometimes in comparing two evil Things together, *Better is it to live with a Dragon, than a meddling Woman.* And in the Gospel, *It is better for a Man to be thrown into the Sea with a Millstone about his Neck, than to hurt one of the Faithful.*

The Reason of this practice is, because a greater Good is better than a lesser. And by the same reason we may say, though less properly, that a Benefit is better than an Evil; for that whatever has some goodness, has more than that which has none at all. We may also say, that a lesser Evil is better than a greater Evil, and therefore the lesser Evil has more of that sort of Goodness than the greater

But we are to take care lest the over-heat
 Dispute carry us unawares into vain Brangles about
 these Forms of Speech, as they did *Cresconius* the
 Donatist Grammarian, disputing against St. *Austin*.
 For that same Father having said that the Catho-
 lickes had more reason to upbraid the Donatists with
 Tradition, than the Donatists to reproach the Catho-
 lickes. *Cresconius* thought he might from those
 words, *Traditionem nos vobis probabilius Obijcimus*
 conclude, that St. *Austin* acknowledg'd that the
 Donatists had reason to tax the Catholicks. For
 you, said he, more probably, we therefore more proba-
 bly. For the degree augments what is placed before.
 does not impugn or deny what is said before.
 But St. *Austin* refutes this vain subtilty, first by
 Examples of Scripture, and among the rest by the
 passage of the Epistle to the *Hebrews*, where
Paul having said, That the Earth bearing only
 Thorns was Cursed, and was only to expect to be
 burnt, he adds, *But we hope better things of you Brethren*;
 not, says the Father, that they were good
 Things which he had rehearsed before, to bring forth
 Thorns and Briers, and to deserve burning, but rather
 because they were evil, that those being avoided, they
 might chuse and wish for better, that is, Benefits con-
 trary to such great Evils. And afterwards he sheweth
 from the most famous Grammarians the Falshood of
 his Consequence; in regard that *Virgil* might have
 been taxed in the same manner, to have taken for
 Good the violence of a Distemper, that enraged
 Men to tear their own Members, because he wished
 better may befall good Men.

*Diū meliora piis erroremque hostibus illum,
Discissos nudis laniabant dentibus artus.*

How then, *Meliora piis*, says the Holy Father, as if they had been Blessings, and not rather extream Evils, to tear their Bowels with their own Teeth.

OF INCEPTIVES and DESITIVES.

When we say that any thing begins, or ceases to be, there are two Judgments made; one, that the thing was before the time that we talk of; the other, what it was afterward, and so these Propositions of which the one are called Inceptive, the other Desitive, are composed in Sence, and they are so alike, that it is much better to make but one sort of them, and to handle them both together.

The Jews did not begin till their return from the Captivity of Babylon, to make no longer use of their ancient Characters, which were those that are now called the Samaritan.

1. *The Latin ceas'd to be vulgarly spoken in Italy about five hundred Years ago.*

2. *The Jews did not begin till the first Century after Jesus Christ, to make use of Points for Vowels.*

These Propositions are contradicted as the one and the other relates to the two different times. So there are some who contradict the latter Proposition; alledging, though falsely, that the *Jews* always used points, at least to read by, and they were kept in the

the Temple. Which is contradicted by others who affirm that points were never us'd till after the first Century.

A General REFLECTION.

Though we have shewed that these propositions Exclusive, Exceptive, &c. may be contradicted several ways, yet it is as certain, that when they are barely denied, without any farther Explanation, the Negation falls naturally upon the Exclusion or the Exception, or the Comparison, or the Alteration, denoted by the words of beginning or ceasing. Therefore if any one believed that *Epicurus* did not place his chief happiness in bodily pleasure, and it should be said to him, *that only Epicurus placed chief happiness in Pleasure*, if the other barely denied it, without adding any other thing, it would be in full declaration of his Sense, because a Man might have reason to believe upon that bare Negation, that he still believed that *Epicurus* plac'd his chief Happiness in Pleasure, but that he was not the only Person who was of that Opinion.

Also if a Person should ask me, knowing the integrity of a Judge, *whether he still sold Justice?* I could not answer barely, *No*.

For that such a *No*, would only signifie that he did not still sell Justice; but at the same time the other was left to believe, that he had formerly done it.

Which shews us that there are some Propositions,

to which it would be unjust to require a bare answer, by *Yes* or *No*; for that when they include two Senses, a true answer cannot be given but by explaining both the one and the other.

CHAP. IX.

Observations to find out the Predicates and Subjects in Propositions, expressed after a less usual manner.

Certainly it is a defect of vulgar Logic, that it does not accustom young Beginners to understand the Nature of Propositions or Arguments, but according to the Order and Forms which are used in the Schools, which are frequently different from what we find in the Writings of others, whether in Oratory, Morality, or any other of the Sciences.

And therefore they have no other *Idea* of a Subject or an Attribute, but that the one is the first Term of the Proposition, and the other the latter. And of Universality and Particularity, but that there is in the one (*All*) or (*None*) and in the other (*Some*) whereas all these Things are subject to frequent Errors; and it requires Judgment to discern these Things in several Propositions. Let us begin with the Subject and Attribute.

The

The only and true Rule is to observe by the Sense, of what a thing is affirm'd, and what is affirm'd is this, for the first is always the Subject and the latter the Predicate, however disposed in Order.

Thus there is nothing more common than these sorts of Propositions ; It is a shameful Thing to be a slave to Lust. Where by the Sense it is visible that a *shameful thing* is that which is affirm'd, and consequently the Predicate ; and to be a slave to Lust is that which is affirm'd of the thing, that it is a shameful thing, and consequently the Subject. Likewise in St. Paul according to the Latin. *Est quæstus magnus Pietas cum sufficientia* ; whereas the true order should be Godliness, with sufficiency, is great gain.

Likewise in this Verse.

Happy the Man that knows the cause of Things.

Happy is the Predicate, all the rest is the Subject.

But the Subject and the Attribute are yet more difficult to be found out in complex propositions. And we have already shewed, that sometimes there is no discerning, but by the consequence of the Discourse, and the Authors Intention, which is the chief proposition, and which the Incident in the two propositions.

But besides what has been said, we may yet observe, that in complex propositions, where the first part is only the Incident proposition, and the latter

the principal; as in the Major and Conclusion of an Argument,

God Commands us to Honour Kings.

William III. is King.

Therefore God commands us to Honour William III.

Here the Verb Active is to be changed into the Passive, to find out the true Subject of this principal Proposition. For it is plain when I argue after this manner, that my principal Intention in the Major, is to affirm something of Kings. Whence I may conclude that we are to Honour *William III.* And therefore what I affirm of the Command of God, is only an incident Proposition which confirms this Affirmative, that Kings are to be honour'd. Whence it follows, that *Kings* is the Subject of the Major, and *William III.* the Subject of the Conclusion. Though if we consider things but only superficially, both the one and the other seem to be no more than a part of the Attribute.

These propositions are also frequent in our Language. *It is a folly to listen to Flatterers. It is the Hail that falls. It is God who has purchased us;* But the Sense sufficiently demonstrates, that to replace these Propositions in their natural order, they ought to be thus expressed.

To listen to Flatterers is a Folly.

It is the Hail that falls.

He that has purchased us is God.

And

And this is almost Universal in all Propositions that begin with *It is*, and where afterwards follow (*who*) or (*that*) to have the Attribute at the beginning, and the Subject at the end. And let it suffice for once, to let you see, that the examples produced demonstrate, that we are to judge by the Sense, and not by the order of the Words. And this is necessary to be known, that we may not be deceiv'd in taking those for false Syllogisms, that are really true. For that want of discerning the Subject and the Attribute in the Propositions, we believe 'em contrary when they are conformable to the Rules.

CHAR. X.

Other Observations, to know whether the Propositions are Universal or Particular

Some Observations of the same nature, and no less useful, may be made of Particularity and Universality.

I. OBSERVATION.

We must distinguish Universality into two Sorts. The one may be called Metaphysical, the other Moral.

I call Metaphysical Universality, when the Universality

Universality is perfect and without Exception; as, *every Man is living*, which admits no exception. I call Moral Universality, that which admits no Exception: For in Moral Things it suffices, that things are so for the most part. As St. Paul cites and proves,

All Cretans are always Lyars, evil Beasts, Slow-bellies.

Or as the same Apostle alledges in another place. *All seek their own Things, not the things of Jesus Christ.*

Or according to that of Horace,

All Musicians have this Vice, &c.

Or according to the usual Phrases,

All Women love to chate.

All Young Men are inconstant.

All Old Men praise the time past.

In all these Propositions it suffices that it be so for the most part, neither is any thing to be concluded strictly.

For as all these propositions are not so general, but that they admit Exceptions, so they may render the Conclusion false. For it could not be particularly inferr'd, that any Cretan was a Lyar, or an evil Beast, though the Apostle cites in general that Verse of one of their own Poets.

The Cretans are always Lyars, evil Beasts, and Slow-bellies.

For that some of that Island might not be guilty of those Vices which were common to others.

There-

Therefore the moderation to be observ'd in these Conclusions, which are only morally Universal, is on the one side, to draw from thence with great judgment particular Conclusions; and on the other side, not to contradict 'em, nor to reject 'em as false; tho' we may oppose certain Instances where in they may stray from the Truth, but to be satisfi'd, if they may be extended from others beyond their just limits, that they ought not to be taken too rigorously according to the Letter.

2. OBSERVATION.

There are some Propositions that ought to pass for Metaphysically Universal, tho' they may admit of Exceptions, that is, when those Exceptions are exotic, and such, as, according to common use, are not comprehended in those Universal Terms. As when I say, *All men have two Arms*, This proposition ought to pass for true, according to ordinary use. And it would be but mere brangling to oppose against it, that there have been Monsters who were Men, though they had four Arms. It being plain that there was nothing intended concerning Monsters, in these general propositions; and that the only meaning of the Assertion was that according to the order of Nature, all Men had two Arms.

In like manner it may be said, that all Men make use of words to express their thoughts; but that all Men do not make use of writing. Nor
would

ould it be a rational Objection to contradict the truth of the proposition, by instancing dumb people; because it is evident, though the sense be not express'd in words, that it was not meant of such as had a natural impediment to make use of sounds, either because they could not understand 'em, as those that are deaf; or because they could not utter 'em, like those that are dumb.

3. OBSERVATION.

There are other propositions which are not Universal, but only because they are to be understood of the single species's of Genus, and not of the Individuals of Species. Thus it is said, that all Creatures were sav'd in Noah's Ark, because that some of every Species were sav'd. *Jesus Christ* rebuk'd the *Pharisees* for taking the Tenth of all Herbs; not that they took the Tenth of all Herbs that were taken in the world; but because that there was no sort of Pot-herb of which they did not take the Tythes. Thus said *St. Paul*, I endeavour to please all Men in all things; that is, I endeavour to frame my self to the condition and humour of all sorts of persons, *Jews, Christians, Gentiles*; though he did not strive to please his prosecutors, that were so numerous. Thus it is said, a Man has pass'd all Offices: that is all sorts of Offices suitable to his condition.

4. PRO-

4. OBSERVATION.

There are propositions that are not Universal, but only as the Subject ought to be taken, as restrained by one part of the Attribute. I say by one part, for it would be ridiculous to think it should be restrained by the whole Attribute. As if any one should affirm this Proposition to be true ; *All Men are just*, because he gave no other Explication of it, than that all just Men are just. But when the Attribute is Complex, and consists of two parts, as in this Proposition ; *All Men are just by the Grace of Jesus Christ*. Then we may with reason affirm the term of *just* to be subintellected in the Subject, though it be not express'd. For then it is clear that the meaning of the Proposition is, that all Men who are just, are not just but by the Grace of Jesus Christ. And so this Proposition is true in all respects ; though it may seem to be false, if we consider no more than what is express'd in the Subject ; there being so many Men who are wicked and sinful, and by consequence have not been justify'd by the Grace of Jesus Christ. There are a great number of Propositions in Scripture, which are to be taken in this sence ; and among the rest that of St. Paul, *As all dy'd in Adam, so all shall live again in Jesus Christ*. For it is certain, that a great number of Pagans that dy'd in their incredulity, shall not live again in Jesus Christ. And that they shall have no part in the Life of Glory, of which St. Paul speaks.

There are also several Propositions which are not

not morally Universal, but in this manner. *The French are good Souldiers ; the Hollanders are good Seamen ; The Flemings are good Painters ; The Italians are good Comedians.* As much as to say, that the French who are Souldiers, are good Souldiers ; and so of the rest.

5. OBSERVATION.

We are not to think that there are no other marks of Particularity, then these words, *Quidam*, *Aliquis*, and the like. On the other side it is very rarely that we make use of 'em, especially in our Language.

The Plural number without the Particle [*The*] makes the word to be taken particularly, whereas the Particle being added, renders the word General. Thus there is a great difference between these two Propositions. *The Physitians now believe, that it is good to drink in the hot fit of a Fever ;* and *Physitians now believe, &c.* For in the first Proposition, *the Physitians*, concludes all Physitians : But in the second, *Physitians* denotes only some particular Physitians.

But frequently *there is*, or *there are*, precede the Singular or the Plural Number, and that in two manners.

The first by placing after *there is*, or *there are*, the Substantive to be the Subject, and the Adjective to be the Attribute of the Proposition. *There are some pains wholesome ; There are some pleasures deadly*

deadly ; There are false Friends. There is a great Humility ; There are Vices conceal'd under the appearance of Vertue. The second manner is by joining the Adjective and the Substantive together, by particles *which* or *who*. As, there are fears which are rational. But these particles do not hinder, but these propositions may be single in sense, though complex'd in expression. For 'tis no more than to say, some fears are rational. But these phrases of Speech are most usual ; There are some Men who love themselves ; There are Christians who are unworthy of the Name.

All or every one with a Negation makes a particular proposition. Every one that says to me, The Lord, shall not enter into the Kingdom of Heaven. Every sin is not a crime.

6. OBSERVATION.

When there is no Term of Universality or Particularity, as *Man is reasonable*, *Man is just*, a question bandy'd among the Philosophers, where these propositions which they call *Indefinite*, ought to pass for Universal or Particular.

To which the Philosophers reply, that the proposition ought to be Universal in a matter necessarily but particular in a Contingent matter.

I find this opinion approv'd by several Learned Men, and yet it is very erroneous. Rather we ought to believe the Indefinite proposition to be Universal, in whatever matter it be, when some

thing is affirm'd of the common Term, and therefore in Contingent matter, it ought not to be call'd a particular proposition, but a false universal proposition. And this is the natural Judgment of all Men concerning propositions, rejecting 'em as false, when they are not generally true, or at least not in a moral generality, which is sufficient in common discourse of the affairs of the World.

For who would endure to hear a Man affirming, that *Bears are white*, that *Men are black*; that the *Parisians are Gentlemen*; the *Polonians, Socinians*; the *English Quakers*. Nevertheless, according to the distinction of these Philosophers, these propositions ought to pass for true, in regard that being indefinite in a contingent matter, they ought to be taken for particulars. Now it is true that some Bears are white, as in *Nova Zembla*; some Men are black as the *Ethiopians*; some *Parisians* are Gentlemen, some *Polonians* are *Socinians*; and some of the *English* are *Quakers*. Clear it is then, that in whatever matter they be made, indefinite propositions of this Nature are taken for Universal; But in a Contingent matter, a Moral Universality is sufficient. Therefore these propositions are true, the *French* are valiant: the *Italians* are jealous; the *Germans* are tall, the *Oriental*s are voluptuous; though they be not true of all particulars, but only for the most part.

Here is therefore a more pertinent Distinction to be made; that these indefinite Propositions are Universal in matter of Doctrine, when we say, the *Angels are incorporeal*, and only particular in Matters

Matters of Fact, and Historical Narrations. when it is said in the Gospel, *The Souldiers have made a Crown of Thorns, set it upon his Head.* This is clearly to be understood of some and not of all the Souldiers. For in matter of single Actions, specially when they are determin'd to a certain time, they do not usually agree with the common Term, but because of some particulars, the Ideas which is distinct in the understanding of those that make the Propositions, as may be judged by what has been said of complex'd Terms in Sence, 1 part cap. 6. 2 part cap. 4.

7. OBSERVATION.

The Names of *Body, Communalty, People,* being as usually they are taken Collectively, for the whole Communalty, all the People, do not make the Propositions wherein they are inserted properly Universal, nor particular, but rather singular. Thus when I say,

The Romans vanquish'd the Carthaginians.

The Venetians make War against the Turk.

The Judges of such a place condemn'd a Criminal.

These propositions are not Universal; otherwise we should conclude of every *Roman*, that he has vanquish'd the *Carthaginians*, which is false. Nor are the particulars. For that would be no more than if I should say, That some of the *Romans* vanquish'd the *Carthaginians*. But they are singular. For the

People that i

People is consider'd morally as one Man, living several Ages, and so long subsisting, as long as the Commonwealth endures : And ceases not to act as those People of which it is compos'd, as a Man by his Members. Whence we may say, that the Romans who were vanquish'd by the Gauls, when they took Rome, overcame the Gauls in Caesar's time ; by one and the same Term, Romans, understanding that they were vanquish'd at one time, and Victors at another. Here we may note by the way, upon what a sandy Foundation that vain-glory leans, which private Persons challenge to themselves the honour of the famous Achievements of their Nation, wherein they had no part ; as idle, as for a deaf Ear to claim particular glory from the quickness of the light, or the nimbleness of the Hand.

CHAP. XI.

two sorts of Propositions necessary for the learning of the Sciences, Definition and Division.

It is requisite that we say something of two sorts of Propositions, which are of great use in the attaining of the Sciences ; Definition and Division.

Division is the Partition of the whole into all that it contains.

K

But

But as there are two sorts of the *whole*, so there are two sorts of Divisions. There is one *whole* compos'd of several parts, which are really distinct, whose parts are call'd Integral parts; and the division of this *whole* is properly call'd Partition, when we divide a House into its Apartments, a City into its Wards and Quarters; a Kingdom into its Provinces; Man into Body and Soul, and Body into its Members. The only Rule for making this Partition aright, consists in the accurate numbring of the parts, so that nothing be omitted.

The other *Whole* is call'd by another name, and its parts are *Subjective* or *Inferior* parts: for this *All*, is a common term, and its parts are Subjects contain'd in its extent. As the word *Creature* is the *All* of that nature, whose inferior parts as Man and Beast, which are comprehended in its extent, are subjective parts. This Division retains properly the name of Division, of which there are four sorts.

1. When the *Genus* is divided by its *Species*. Thus, *All substance is either Body or Spirits. All Creatures are Man or Beast.*

2. When the *Genus* is divided by differences. *Every Creature is either rational or irrational. All numbers are even or odd. All Propositions are true or false. All Lines are streight or crooked.*

3. When a common Subject is divided by its opposite Accidents, of which it is capable; or according to the diversity of Accidents and Times.

Star gives light of its self, or by reflection. All
 things either move, or stand still. All the French are
 either Gentlemen, or Plebeians. All Men are sick, or
 well. All People to express their minds, make use of
 words or of writing.

4. When the Accident is divided into various
 Subjects. As when happiness is divided into that of the
 Mind or Body.

The Rules of this Division are.

1. That it be entire; that is, that the Members
 of the Division contain the whole extent of the
 term divided. Thus even and odd comprehend the
 full extent of number; there being no number
 which is not even or odd. Nor is there any thing
 that plunges us more into false Argumentation,
 than want of observing this Rule. And that which
 deceives us is, that many times there are Terms,
 which appear so opposite, that they seem to admit
 no Medium, when really they do.

Thus between Ignorant and Learned, there is a
 certain Mediocrity of Knowledge, that exempts a
 Man from the rank of the Ignorant, though it
 does not advance him among the Learned. Between
 Vertuous and Wicked, there is a certain Estate, of
 which we say, as Tacitus says of Galba, *Magis ex-
 tra vitia, quam cum virtutibus*, rather declining from
 Vice, than adhering to Vertue. For there are some
 People, who not being guilty of enormous Vices,
 are not call'd vicious, yet not being eminent for
 goodness cannot be said to be vertuous. Between
 Healthy and Sick, there is the condition of a Man

indispos'd and sickly. Between day and night there is Twilight. Between Piety and Impiety there is Superstition. And sometimes this *Medium* is twofold, as between Covetousness and Prodigality, there is Liberality and Frugality. Between fear that fears every thing, and rashness, that fears nothing, there is valour that is not affrighted at danger ; and wisdom, that avoids unnecessary dangers.

2. The second Rule is, that the Members of the Division be oppos'd, as *even, odd, rational, irrational*. However it is not necessary that all the differences that make the Members opposite, should be Positive ; it being sufficient that one be so, and that the other be the *Genus* alone, with the Negation of the other difference ; for from hence arises the most certain opposition of the Members. Thus a Beast is distinguished from a Man, only by his want of Reason, which is nothing Positive.

Thus *odd* in number is only the negation of divisibility into equal parts. Thus in the first number, there is nothing more than what is in the compound number, *unite* being the measure of both ; and the first number no way differing from the Compound number, but in this, that it has no other measure but the *Unite*.

However we must confess it is better to express the opposite differences by positive Terms, if it may be done. For thereby the Nature of the Members of the Division, is more clearly understood. Therefore the Division of Substance into *Thinking*, and *extended*, is better than into *Materia*

and Immaterial; or into Corporeal and Incorporeal; for that the words Immaterial and Incorporeal, give us but an imperfect and confus'd *Idea*, of what is much better apprehended by the words *Thinking Substance*.

The Third Rule, being a Consequence of the second, is, that one of the Members be not so enclosed in the other, that this may be affirm'd of that; though perhaps it may be included another way. For a line is included in the Superficies, and the term of the solid, as a term of the solid. But that does not hinder, but that the extent may be divided into surface, line and solid; for that it cannot be affirmed, that the Line is a Superficies, nor that the Superficies is a solid. But on the other side, number cannot be divided into *even, odd and square*, because every square number being even or odd, it is enclosed in one of the two first Members.

Neither must we divide opinions into true, false and probable, because every true opinion is either true or false. But they may be first divided into true and false; and then both the one and the other into certain and probable.

Ramus and his Followers strangely torment themselves to shew that all Divisions ought not to have above two Members. Which indeed is the best way of Division, when it may be commodiously done. But Clearness and Facility, being that which ought to be most consider'd in the Sciences, Divisions into three or more Members, ought not to be rejected, so much the rather, when they are most

natural, and that there be a necessity of forc'd subdivisions, to make 'em consist of no more than two Members. For then instead of easing the Memory which is the only benefit of Divisions, we load it with a great number of Subdivisions, much more difficult to be retained in Memory, than a Division into more Members all at once. For example, is it not more short and natural to say, *Every extent is either a Line, a Superficies, or a solid*, than with *Reamus*, *Every Magnitude is a Line, or a thing Consisting of Lines; every thing consisting of Lines, is either a Superficies or a solid Body*.

Lastly, we may observe that it is equally erroneous not to make anow, as to make too many Divisions, the one does not sufficiently satisfy the Mind; the other confounds and amuses the Understanding. *Crassotus*, in great Esteem among the Interpreters of *Aristotle*, has greatly injur'd his Book with a multitude of Divisions; by which we fall into that Confusion which we seek to avoid. *Whatever is cut into Dust is Confus'd*.

CHAP. XII.

Of the Definition of a Thing.

There are two sorts of the Definition of things, the one more exact, which retains the name of Definition; the other less exact, which is call'd Description.

The more exact is that which explains the nature of the thing by Essential Attributes; of which those that are common are call'd *Genus*, and those that are proper *Difference*.

Thus man is defin'd a rational Creature. The Soul is a Substance that thinks; the Body is a Substance extended; God is a perfect Being. And great care is to be taken that the *Genus* in the Definition be the next, and not the remote *Genus* of the thing defined.

Sometimes we define by integrant parts, as when we say, a man is defined of Soul and Body. But then there is something that supplies the place of *Genus*; as here the *Compound Being*; the rest are taken for the difference.

The less exact Definition, which is called Description, is that which gives some knowledg of a thing by the accidents that are proper to it; and so determines it, that we may frame such an *Idea* of it, as distinguishes from other things.

Thus we describe Plants, Fruits and Animals by their shape, by their bulk, their colour, and such

such like accidents. And these are the descriptions most used by Poets and Orators.

There are also Descriptions made by the Causes, by the Matter, Form, by the end, &c. when we define a Clock to be an Engine composed of several Wheels, whose regular motion limits the several hours.

There are three things necessary to make a Definition good: that it be universal, proper and clear.

1. It must be universal, that is, it must contain the whole thing defined; therefore the common definition of *Time*, to be the measure of Motion is not good. For that is very probable that time may be the measure of Rest as well as Motion, in regard we say as well, that a thing has been so long at rest, as that it has been so long in Motion. So that time seems to be nothing else but the continuance of a thing in any Condition whatever.

2. It must be proper, that is, it must agree with the thing defined. Therefore the common Definition of Elements, to be a *Simple Corruptible Body*, is erroneous. For the Heavenly Bodies being no less simple Bodies than the Elements by the Confession of the Philosophers, we have no reason to believe but that there are alterations in the Heavens, Analogous to those that happen upon Earth; since not to speak of Comets which we now find, are not form'd of the Exhalations of the Earth, as Aristotle imagined, we discover spots in the Sun, which gather together, and then scatter again in the same manner

manner as our Clouds, tho much larger in extent.

Thirdly, it must be clearer ; that is, it ought to render the *Idea* of a thing defined, more plain and distinct, and make us as much as may be to understand the nature of it, and be serviceable to us to give a reason of its principal Proprieties. Which is that which we ought principally to consider in Definitions, and which is wanting in the greatest part of *Aristotle's*.

For whoever understood the nature of motion, the better for the help of this Definition ; *An Act of Ens in Potentia*, as in *Potentia*, or Power ? Is not the *Idea* of it, wherewith Nature furnishes us a hundred times more clear than that ? and indeed what did it ever avail to explain the Proprieties of Motion ?

The four celebrated Definitions of the four first qualities are nothing better.

Drie, says he, is that which is easily retain'd within its bounds, and difficultly within those of another Body.

Moisture. On the other side is that which is easily retain'd in the Bounds of another Body difficultly within its own.

1. These Definitions better agree with hard and Liquid Bodies, then with Bodies moist and dry. For we say of the Air, that here it is dry, in another place moist, tho it be always easily retained within the Bounds of another Body, as being always Liquid. Moreover, we do not see how *Aristotle* could

say that Fire, that is, Flame, was dry according to this Definition, because it is easily confined within the Bounds of another Body. Whence *Virgil* calls it Liquid Fire. And it is a vain subtilty to say with *Campanella*, that Fire enclosed either *breaks* or *is broken*; for that proceeds not from its pretended driness, but because its own Smoak stifles it, if it have not Air, and therefore it will be more easily restrained within the limits of another Body, provided it may have some Breathing-hole to let out the Smoak which it continually sends forth.

As for *Hot*, he defines it, *that which congregates Homogeneals, and separates Heterogeneals.*

Cold, he defines *that which unites Heterogeneals and dissipates Homogeneals.* Which sometimes agrees as well with *Hot* as with *Cold*; but not always, and which is of no use, neither to shew us the cause why we call some Bodies *Hot*, and others *Cold*. So that Chancellor *Bacon* had reason to say, that these Definitions were like those that should define *a Man to be a Shoo-maker, or a Vine-dresser.*

The same Philosopher defines Nature, *the principle of Motion and Rest, in that wherein it is grounded.* Which is grounded upon an opinion that he had, that all natural Bodies differ'd in this from Artificial Bodies, that natural Bodies had in themselves the Principle of their Motion, and that the motion of Artificial Bodies was from without; whereas it is evident that no Body can

give motion to its self : in regard that matter being indifferent either to Motion or Rest, cannot be determined to either of these, but by an extrinsic cause, which not being able to proceed to Infinity, it follows that God alone gives motion to matter, and preserves it in its Motion.

His celebrated Definition of the Soul is no less defective, *The first act of a natural Organic Body, that has life in Power.*

First it does not appear what he would define. For if it be the Soul, as common to men and Beasts, it is a *Chimera* which he has defined, there being nothing common between those two things.

2. He has explained an obscure Term by four or five that are more obscure. For to omit the rest, the *Idea* which we have of the word *Life*, is no less confused than that which we have of the Soul; these two Terms being equally Ambiguous and Equivocal.

These are the Rules of Definition and Division; but tho there be nothing of more moment in the Sciences, than to define and divide well, we need say no more in this place; because it depends much more upon the knowledge of the Subject in disputes than upon Logical Rules.

CHAP. XIII.

Of the Conversion of Propositions, where is through Inquisition into the Nature of Affirmation and Negation, upon which this Conversion depends. And first of the Nature of Affirmation.

I Have deferred till now to speak of the Conversion of Propositions, because upon that depends the Foundation of all Argumentation, of which we are to discourse in the next part. And therefore it was not proper that this matter should be remote from what we have to say of the Nature of Arguments, though it behoves us to repeat something of what we have said concerning Affirmation and Negation, that we may thoroughly explain the Nature both of the one and the other.

Certain it is, that we cannot explain a Proposition to others, but we must make use of two *Ideas*, the one for the Subject, the other for the Attribute ; as also of another word which denotes the Union, which our Understanding conceives between them.

This Union cannot be better expressed than by the Words themselves which we make use of to affirm, while we say, that one Thing is another Thing.

From whence it is evident, that the Nature of Affirma-

Affirmation is to Unite and Identify, as I may so say, the Subject with the Attribute ; for this is that which is signified by the word *est*, *it is*.

And it follows also, that it is the Nature of Affirmation, to put the Attribute in all that is expressed in the Subject, according to the Extent which it has in the Proposition. As when I say, *Every Man is a Creature*, I would signify, that whatever is Man is also a Creature ; and so I conceive a Creature to be in all Men.

Whereas if I only say, *some Man is just*, I do not Unite the Attribute of *Just* to all, but only to some one Man.

Here we must also consider what has been already said, that in *Ideas* we must distinguish their Comprehension from their Extension ; for that the Comprehension marks out the Attributes contain'd in one *Idea* ; and the Extension the Subjects which contain that *Idea*.

For thence it follows, that an *Idea* is always affirm'd according to its Comprehension, for that by depriving it of some one of its Essential Attributes, it is entirely annihilated, so that it is no more the same *Idea*. And by consequence when it is affirm'd, it is always according to all that which it comprehends in it self. Thus when I say, that a *Rectangle is a Parallelogram*, I affirm of a *Rectangle* all that is comprehended in an *Idea* of a *Parallelogram*. For if there were any part of this *Idea*, which did not agree with a *Rectangle*, it would follow, that the *Idea* it self did not agree with it, but only one part.

And

And therefore the word *Parallelogram* ought to be denied, and not affirm'd of a *Rectangle*. Which we shall find to be the Ground of all Affirmative Arguments.

And it follows, on the other side, that the *Idea* of the Attribute is not taken according to its full Extension; at least that its Extension was not greater than that of the Subject.

For if I say, that *all Lascivious Men are damn'd*, do not say they only shall be damn'd, but that they shall be of the number of the damn'd.

Thus the Affirmation placing the *Idea* of the Predicate in the Subject, it is properly the Subject which determines the Extension of the Attribute, in an affirmative Proposition, and the Identity which it denotes, regards the Attribute, as included in an extent equal to that of the Subject; and not in all its Universality, if it have any more than the Subject. For it is true, that Lions are all included in the *Idea* of *Creature*, but it is not true that they are all the *Creatures* that are.

I have said, that the Predicate is not taken in its full Generality, if it have any more than the Subject. For not being restrained but by the Subject, if the Subject be as general as the Attribute, it is clear, that the Predicate shall enjoy all its Generality, because it shall have as much as the Subject, and for that we suppose, that according to its own Nature it cannot have more.

From whence we may gather these Four undoubted Axioms.

I. AXIOM.

The Attribute is placed in the Subject by the Proposition affirmative, according to the full Extent of the Subject in the Proposition. That is, if the Subject be universal, the Attribute is conceived in the full extent of the Subject; and if the Subject be particular, the Predicate is only conceiv'd in a part of the Extension of the Subject: As in the foregoing Examples.

2. AXIOM.

The Predicate of an Affirmative Proposition, is affirm'd according to its full Comprehension: That is to say, according to all its Predicates.

3. AXIOM.

The Predicate of an Affirmative Proposition, may be affirmed according to its full Extension, if it be in its self greater than that of its Subject. As when we say that Men are Creatures, the word Creature signifies no more all sort of Creatures, but only such Creatures as are Men.

CHAP. XIV.

Of the Conversion of Affirmative Propositions.

WE call that the Conversion of a Proposition, when the Subject is changed into the Predicate, and yet the Proposition holds true, if it were so before : Or rather that it necessarily follows to be true by the Conversion, supposing that it were such before.

Now from what we have said, it may be easily understood how this Conversion is to be made. For as it is impossible that one thing should be joyn'd and united to another ; but that the other must be joyn'd to the first ; and that it follows of Course, if *A* be joyn'd to *B*, *B* is also joyn'd to *A*, it is evident, that it is impossible that two Things should be conceived as Identified, which is the most perfect of all Unions, but that the said Union must be reciprocal, that is, unless it may be affirm'd of both Terms, that they are united in the same manner as they are said to be. Which is call'd Conversion.

Therefore, as in particular Affirmative Propositions for Example, when it is said, *some Man is just*, the Subject and the Predicate are both Particular ; for that the Predicate *just* being restrain'd by the Extent of the Subject, signifies only that particular

particular Justice which is in some one Man; it is evident that if some one Man be Identified with *just*, somewhat of *just* is also Identified with some one Man. And therefore there needs no more than simply to change the Attribute into the Subject, observing the same particularity, to convert these sorts of Propositions.

We cannot say the same thing of Universal Affirmative Propositions, because that in those Propositions the Subject is only Universal, that is, is taken in its full Extent, and the Attribute on the other side is limited and restrain'd. And therefore when it is to be made the Subject by Conversion, the same restriction is to be observed, and the mark which determines it, must be added, least it should not be taken generally. Thus when I say, That Man is a Creature, I unite the *Idea* of Man with that of a Creature, restrain'd and limited only to Men. And therefore if I would invert this Union, by beginning from a *Creature*, of which may afterwards be predicated, the same Restriction of the first Term is to be observ'd, and for fear of being deceiv'd, some note of determination must be added.

However, because Affirmative Propositions cannot be converted, but into particular Affirmatives, that they are less properly converted than others. But as they are composed of a general Subject, and a restrain'd Predicate, it is evident when they are converted, by changing the Attribute into the Subject, they ought to have a restrain'd or limited Subject.

When

When we deduce these two Rules.

1. Rule.

Universal Affirmative Propositions may be converted by adding a mark of Particularity to the Attribute, and become the Subject.

2. Rule.

Particular Affirmative Propositions are to be converted without any Addition, or any change. That is, retaining only for the Attribute, become the Subject, the Mark of particularity, that belong'd to the Subject.

But these two Rules may be reduced to one that shall comprehend both.

The Attribute being limited by the Subject, in all affirmative Propositions, if the Predicate is to be changed into the Subject, the Restriction must be observed: And by consequence it must have a mark of particularity annexed, whether the first Subject were Universal or Particular.

Nevertheless it often happens, that Universal Affirmative Propositions, may be converted into others that are Universal. But this is only when the Attribute is of it self no larger in Extent than the Subject, as when difference or propriety are affirmed of the Species, or the Definition of the Thing defined. For then the Attribute not being restrained may be taken in the Conversion, as generally as the Subject, *All Men are Rational, all Rational Creatures are Men.*

But these Conversions not being true, unless upon particular Occasions, they are look'd upon as true conversions, which ought to be certain and infallible, by the Disposition of the Terms.

CHAP. XV.

Of the Nature of Negative Propositions.

THE Nature of a Negative Proposition cannot be more clearly expressed than by saying, that one Thing is conceived not to be another.

But to the End one Thing may not be another, is not necessary that it should have nothing common with it; it being sufficient that it has not all which the other has; as it is sufficient for a Beast not to be a Man, that he has not all that a Man has, not but that he may have something common with Man. From whence this Axiom follows.

5. AXIOM

A Negative Proposition does not separate from the Subject all the parts contain'd in the Comprehension of the Attribute; but it only separates the total Idea composed of all the united Attributes.

If I say, That Matter is not a thinking Substance, I do I not deny it to be a Substance, but I say it is not a Thinking Substance, which is the total and entire which I deny of the Matter.

It

It is quite otherwise with the Extension of *Idea*. For the Negative Proposition separates from the Subject, the *Idea* of the Attribute in its full extent. The Reason of which is evident. For to be the Subject of an *Idea*, and to be contain'd in the Extension is no more than to include that *Idea*, and by consequence when we say, that one *Idea* does not include another, which may be call'd denying we say that it is not one of the Subjects of the *Idea*.

Thus when I say, That a Man is not an *Insensible Being*, I say at the same time, That Man is not one of the *Insensible Beings*, and by consequence I deny all Things insensible of Man, whence we may derive this Axiom.

6. AXIOM.

The Attribute of a Negative Proposition is always taken generally. Which may be express'd more distinctly. All the Subjects of an Idea, which are denied of another Idea, are also denied of the former Idea. If a Triangle be denied of Squares, whatever is Triangular shall be denied of a Square. In the Schools they usually say, what is denied of the Genus, is denied also of the Species. For the Species is the Subject of the Genus, as Man is the Subject of Creature, being contain'd in the Extension of Creature.

Not only Negative Propositions separate the Attribute from the Subject according to the full Extension of the Attribute; but they separate that Attribute also from the Subject, according to the full Extension which the Subject has in the Proposition.

That

that is, it separates it universally, if the Subject be universal; particularly, if Particular. As if I say, *A vicious Man is happy*, I separate all vicious persons from happy Persons. And if I say *some one Doctor is not learned*, I separate learned from some Doctors. From whence we draw this Axiom.

7. *AXIOM.*

Every Attribute denied of a Subject, is denied of all that is contain'd in the Extent which the Subject has in Proposition.

CHAP. XVI.

Of the Conversion of negative Propositions.

AS it is impossible to separate two Things totally, but that the separation must be mutual and reciprocal, it is evident that if I say, *No Man is a Stone*, I can likewise say, *No Stone is a Man*. For if any Stone were a Man, that Man would be Stone, and by consequence it would not be true that no Man was a Stone. Hence this Rule.

3. *Rule.*

Universal Negative Propositions may be converted simply, by changing the Attribute into the Subject, and by preserving the Attribute, become the Subject, the same Universality which the former Subject had.

In negative Propositions, the Attribute is always taken

taken Universally ; as being denied according to its full extent.

But the same Reason will not allow the Conversion of particular Negative Propositions : For example, we cannot say that some one Physician is a Man, because we may say that some one Man is no Physician. Which proceeds from the Nature of the Negation itself, that in negative Proposition the Attribute is always taken Universally, and according to its full Extension. So that when a particular Subject becomes an Attribute by Conversion in a Negative particular Proposition, it becomes Universal, and changes its Nature, contrary to the Rules of true Conversion ; which ought not to change the Restriction of the Terms. So in the Proposition, *Some one Man is no Physician*, the term Man is taken particularly. But in the false Conversion, *Some one Physician is no Man*, the word Man is taken Universally.

Now it no ways follows, that because the quality of the Physician is separated from *some one Man* in this Proposition, *Some one Man is no Physician* ; because the Idea of a Triangle is denied of some other Figure, as in this Proposition, *Some one Figure is no Triangle*, I say it does not follow hence, that there are any Physicians that are not Men, nor any Triangles that are not Figures.

The End of the Second Part.

LOGIC:

OR, THE

ART

OF

THINKING.

PART III.

Of Discourse or Ratiocination.

THIS Part of which we are now to treat, containing the Rules of Discourse, is accounted the most important Part of Logic, and is almost the only Part which ought to be handled most accurately. But we have some reason

son to suspect whether it be altogether so useful. For the greatest Part of the Errors among Men, as we have already said, arises from hence, that they build their Discourses upon false Principles, rather than from their drawing false Conclusions from their Principles. It rarely happens that we are imposed upon by such Discourses which are therefore only false, because the Consequences are ill drawn. Seeing they who are not able to discover those Falsities by the Light of Nature, will for the most part be as unable to understand, much less to apply the Rules which are laid down for Discourse. Nevertheless should these Rules be look'd upon only but as speculative Truth, they would be very useful for the Exercise of the Wit. And moreover cannot be deny'd but that they be of some use upon several Occasions especially to such who being of a quick and lively Apprehension, never suffer themselves to be deluded by false Consequences but for want of Heed and Attention, which a due Reflection, upon these Rules would easily rectify. However it be, we here present ye with what has been usually said concerning this matter, and with something more than has hitherto yet been discovered.

CHAP. I.

Of the Nature of Ratiocination and the several sorts of it.

THE necessity of Discourse is only founded upon the narrow Bounds of Human Wit; which being to judge of the Truth or Falshood of Proposition, which is then call'd a *question*, cannot always do it by the consideration of the two *Ideas* that compose it, of which that which is the Subject is call'd the *Lesser Term*, because the Subject is of a lesser extent than the *Predicate*; and the Predicate is call'd the *Greater Term* for the contrary Reason. So then, when the sole Consideration of these two *Terms* does not suffice for a Man to judge whether he ought to affirm the one or the other, there is a necessity to have recourse to a third *Idea*, either *Simple* or *Complex* (according to what has been said of *Complex Terms*) and this third *Idea* is call'd the *Medium*.

Now this Comparison of the two *Ideas* together by means of the *Medium* would be useless, were the Comparison to be made with only one of the *Terms*. As for Example, If I would know, whether the Soul be *Spiritual* or no? And not understanding it at first, I should make choice of the *Idea* of *Thought*, to dilucidate the question; it is clear that it would be to no purpose to compare *Thought*

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with

with the Soul, if it did not conceive some correspondency between Thought and the Predicate or thing Spiritual, by means of which I may be able to judge whether it agrees with the Soul. Thus I may say the Soul thinks, but I cannot thence conclude that the Soul is Spiritual, unless I conceive some Relation between *Thought* and that of *Spiritual*.

So then it is requisite, that the Middle Term should be compar'd as well with the Subject or Lesser Term, as with the Predicate or Greater Term, whether it be with both apart as in Syllogisms, which are therefore call'd *Simple*; or with both together at one time, as in Arguments which are call'd *Conjunctive*.

But as well in the one as other manner, this Comparison requires two Propositions.

We shall speak in particular of Conjunctive Arguments; but in Simple Arguments the Thing is clear; for that the Middle Term being compar'd with the Predicate of the Conclusion (which cannot be done but by affirming or denying) makes the Proposition which we call the *Major*, because the Attribute of the Conclusion is call'd the *Greater Term*.

And being another time compar'd with the Subject of the Conclusion, it makes that proposition which is call'd the *Major*, because the Subject of the Conclusion is call'd the *Lesser Term*. And the Conclusion is inferr'd, which is the Proposition it self to be prov'd, and which before it was prov'd was call'd the *question*.

It is also necessary to know that the two first propositions are call'd the *Premises*, because they are placed at least in the understanding, before the Conclusion, which ought to be a necessary consequence, if the Syllogism be good; that is to say, the Truth of the Premises being supposed, it follows necessarily, that the Conclusion shall be good.

True it is, that both the premises are not always express'd, because that oft times one alone suffices to represent both to the Understanding. And when two propositions only are express'd, that sort of Argument is call'd an *Enthymene*, as being a true Syllogism in the Intellect, because it supplies the proposition that is not express'd; however it is defective in words, and concludes nothing but by virtue of the proposition which is not express'd.

I have said, That there are at least three propositions in one Argument; however there may be more, and yet the Argument not be faulty, provided the Rules be also observ'd. For after we have consult'd a third *Idea*, to know whether a Predicate agrees or not agrees with a Subject, and compar'd it with one of the Terms, I may make choice of a Fourth and a Fifth to make the matter plain, till I come to a predicate of the Conclusion that agrees with the Subject.

As for Example, if I put the question, *Whether Covetous Men be miserable*. I may first consider, that covetous Men are full of Desires and Passions; but if from that consideration I cannot conclude *covetous Men to be miserable*, I will consider what it is to

be full of Desires, and there I shall consider the *Idea* of wanting those Things which a Man desires, and the misery of that privation ; from whence I may form this Argument.

Covetous Men are full of Desires.

They who are full of Desires want several Things ; it being impossible they should satisfy their Desires.

Now they that want what they desire are miserable.

Covetous Men are therefore miserable.

This sort of Argument composed of several propositions, of which the second depends upon the first, the third upon the second, and so forward is call'd *Sorites*. And these are those Arguments which are most usual in the Mathematics. But because when they are so long the Intellect has much ado to follow them, and for that the number of three propositions is sufficiently proportionable to the extent of our Understanding ; Men have taken the more care to examine the Rules of good and bad Syllogisms, that is to say, of Arguments of three propositions. Wherein it will not be amiss to follow the Footsteps of others ; because those Rules may be readily apply'd to all Arguments composed of several propositions ; so that if they are good, they may be reduced into Sillogisms.

CHAP. II.

*The Divisions of Syllogisms into Simple and
and Conjunctive, and of Simple into In-
complex and Complex.*

Syllogisms are either *Simple* or *Conjunctive*. *Simple* Syllogisms are those which are only join'd at one time to one of the Terms of the Conclusion. Thus, this is a simple Argument.

Every good Prince is belov'd by his Subjects.

Every Pious King is a good Prince,

Therefore every Pious Prince is belov'd by his Subjects.

For here *Pious King* is joined seperately with the Subject of the Conclusion, and with *beloved by his Subjects*, which is the Predicate. But this that follows is *Conjunctive* for the contrary Reason.

If an Elective Kingdom be subject to Divisions, it cannot be of long continuance.

But an Elective Kingdom is subject to Divisions.

Therefore an Elective Kingdom is not of long continuance.

For here *Elective Kingdom*, which is the subject, and of *Long Continuance*, which is the predicate, are both comprehended in the Major.

Now in regard these two sorts of syllogisms have their separate Rules, we shall treat of them apart.

The simple syllogisms, which are those where the middle Term is joined by turns with each of the

Terms of the Conclusion, are also of two sorts.

The one, where every Term is joined entirely with the middle Term; that is to say, with the predicate entirely in the *Major*, and with the subject entirely in the *Minor*.

The other, where the conclusion being Complex, that is, composed of Terms complex; one part of the subject, or one part of the predicate, joined with the middle Term in one of the propositions; and all the rest, which is no more than one sole Term, is join'd with the middle Term in the other proposition. As in this Argument,

The Law of God obliges us to Honour Kings.

William the Third is King ; Ergo,

The Law of God obliges us to Honour William the Third.

We shall call the first sort of Argument *Clear* or *Incomplex'd*, and the other *Implicated* or *Complex'd*; not that all those that contain complex'd propositions are of the latter sort; but because there are none of the latter sort wherein there are not complexed propositions.

Now though the Rules are generally given for simple syllogisms, may serve for all complex'd syllogisms, provided they be inverted, nevertheless because the force of the Conclusion does not depend upon that Inversion, we shall here apply the Rules for simple syllogisms only to Incomplex'd, reserving another place to speak of syllogisms complexed.

CHAP. III.

General Rules for simple Syllogisms In-
complexed.

This Chapter, with those that follow to the Twelfth are such, of which we have spoken in our Preliminary Discourse, that contain things subtil and quaint, and necessary for the Speculation of Logic; but of little Use.

WE have already seen in the foregoing Chapters, that a simple syllogism ought to have no more than three Terms, the two Terms of the conclusion, and the middle Term; each of which being twice repeated, make three propositions. The *Major* containing the middle Term, and the predicate of the Conclusion, call'd the *Major Term*; the *Minor* containing the middle Term, and the Subject of the Conclusion, called the *lesser Term*, and the Conclusion wherein the lesser Term is the Subject, and the greater Term the Predicate.

But because all sorts of Conclusions are not to be drawn from all manner of premises, there are General Rules that make it appear, that a conclusion cannot well be drawn into a Syllogism, where they are not duly observed. And these Rules are grounded upon those Axioms establish'd in the second part, concerning the Nature of Propositions

Affirmative, Negative, Universal and Particular which we shall here only repeat, as being proved in another place.

1. Particular propositions are included in generals of the same nature, and not generals in particulars. *I* in *A* and *O* in *E*, not *A* in *I*, nor *E* in *O*.

2. The subject of a proposition taken universally or particularly, is that which renders it universal or particular.

3. The predicate of an Affirmative proposition being never of a larger Extent than the subject, is always considered as taken particularly : For that it is only by accident, if it be sometimes taken generally.

4. The predicate of a Negative proposition is always taken generally.

Upon these Axioms chiefly are founded the general Rules of *Syllogisms*, not to be violated without falling into false Argumentation.

1. Rule.

The middle Term cannot be taken twice particularly, but it ought to be taken at least once Universally.

For in regard the two Terms of the Conclusion are to be united or disjoin'd, it is apparent that no such thing can be done, if the middle Term be taken for two different parts of the same whole, since it may happen that it may not prove to be one and the

the same part of the two Terms that shall be united or disunited. Now being taken twice particularly, it may be taken for two different parts of the same whole : And by consequence nothing can be concluded, or at least not necessarily. Which is enough to render an Argument Vicious : since we call a true Syllogism, only that whose Conclusion cannot be false if the premises be true. As thus in this Argument.

Some one Man is Pious.

Some one Man is a Robber.

Therefore some one Robber is Pious.

Here the word Man being taken for the several parts of Men, cannot unite *Robber* with *Pious*; because it is not the same person that is a *Robber* and *Pious*.

The same cannot be said of the Subject and Predicate of the Conclusion. For tho' they be taken twice particularly, yet they may be joined together by uniting one of the Terms to the middle Term in the full Extent of the middle Term. For it follows from thence very well, that if the middle Term be united in any one of its parts to some part of the other term, the first term which we have said to be join'd to the entire middle Term, will be joined also with the Term to which any part of the middle Term is joined. Thus if there be some French in all the Houses in *Paris*, and that there be Germans in some Houses in *Paris*; it follows that there are some Houses in *Paris*, where there lives together at least one German, and one Frenchman.

If some Rich Men are Fools.

And all Rich Men are to be honour'd,

There are some Fools to to honour'd.

For the Rich that are Fools are also to be honoured, since all Rich Men are to be honoured and by consequence in those Rich and honoured Fools, the qualities of Fools and Honoured joined together.

2. Rule.

The Terms of the Conclusion cannot be taken more Universally in the Conclusion than in the Premises.

And therefore if the one or the other Term taken Universally in the Conclusion, the Argument will be false, if it be taken particularly in the first propositions.

The Reason is, for that nothing can be concluded from a Particular to an Universal. For because some one Man is a *Blackamore*, it cannot be there concluded that all Men are *Blackamores*.

1. Corollary.

There must be always one Universal Term more in the Premises which is not such in the Conclusion. For every Term that is Universal in the Conclusion, must be Universal in the Premises; moreover the middle Term must be at least once universally taken.

2. Corollary

2. *Corollary.*

When the Conclusion is Negative, of necessity the greater Term must be taken generally in the Major. For it is taken Generally in the Conclusion (by the Fourth *Axiom*) and by consequence must be taken generally in the Major (by the 1st Rule.)

3. *Corollary.*

The Major of an Argument, of which the Conclusion is Negative, can never be a particular Affirmative : For the Subject and Predicate of an Affirmative proposition are both taken particularly (by the Second and Third *Axiom*) and so the greater Term would be taken particularly contrary to the Second *Corollary*.

4. *Corollary.*

The lesser Term is always in the Conclusion as in the premises, that is as it cannot but be particular in the Conclusion when it is particular in the Premises, so on the contrary it must be always general in the Conclusion, when it is so in the Premises. For the lesser Term cannot be General in the Minor; when it is the Subject of it, unless it be generally united or disunited from the middle Term. For it cannot be a predicate and taken universally, unless the proposition be Negative, because the predicate of an Affirmative proposition is always taken particularly. Now in Negative propositions, if
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the predicate be taken in its full Extent, it is a sign that it is disunited from its Subject. And by consequence, a proposition where the middle Term is universal, denotes a union of the middle Term with the whole lesser Term, or a disunion of the middle Term from the whole lesser Term.

Now if by this Union of the lesser Term with the whole middle Term, it be concluded that some other *Idea* is join'd with the lesser Term, it is to be concluded that it is join'd with the whole, and not with part: For the middle Term being join'd to the whole lesser Term, can by that Union prove nothing of one part, which it does not prove of the rest as being join'd to the whole.

In like manner, if the disunion of the middle Term from the lesser Term prove any thing of any part of the lesser Term, it proves it of all the parts as being from all the parts equally disunited.

5. Corollary.

When the Minor is a Negative universal, if a lawful Conclusion may be drawn from it, it must be always General. This is a consequence of the Corollary preceding. For the lesser Term cannot fail to be taken generally in the Minor when it is a Negative Universal, whether it be the Subject (by the second Axiom) or the Predicate (by the Fourth.)

3. Rule.

Nothing can be concluded from two Negative Propositions.

For two Negative Propositions separate the Subject from the middle Term, and the Predicate also. Now when two Things are separated from the third Thing, it does not follow either that those Things are or are not the same third Thing. For from hence that the *Spaniards* are not *Turks*, and that the *Turks* are not Christians, it does not follow that the *Spaniards* are not Christians. Nor does it follow that the *Chineses* are Christians, though they be no more *Turks* than the *Spaniards*.

4. Rule.

A Negative Conclusion cannot be proved by two Affirmative Propositions.

For because the two Terms of the Conclusion are united with the third Term, it does not follow but that they may be disunited one from another.

5. Rule.

The Conclusion always follows the weaker Part ; That is to say , if one of the Propositions be Negative the Conclusion must be Negative ; if the Proposition be particular, the Conclusion must be particular.

For if one Proposition be Negative, the middle Term is disunited from one of the parts of the Conclusion, and therefore cannot unite both, which however is necessarily required to make an Affirmative Conclusion.

Also

Also if one of the Propositions be particular ; the Conclusion cannot be General. For if the Conclusion be a Universal Affirmative, the Subject being Universal, it ought to be Universal in the Minor, and by consequence the Subject of it, the predicate never being taken generally in Affirmative Propositions. Therefore the Middle Term added to this Subject shall be particular in the Minor, and therefore General in the Major ; otherwise it will be twice particularly taken. Therefore it shall be the Subject of it, and by consequence this Major Proposition shall be Universal. Thus it is plain that no particular Proposition can precede, whose conclusion shall be Universal.

Which is yet more manifest in Universal Negative Conclusions. For thence it would follow that there ought to be three Universal Terms in the Premises (by the first Corollary) but in regard there ought to be one Proposition Affirmative (by the *Third Rule*) whose predicate is taken particularly, it follows that all the other three Terms are taken Universally and by consequence both Subjects of the Premises shall be taken Universally, which renders 'em Universal. Which was the thing to be demonstrated.

6. Corollary.

That which concludes the General, concludes also the Particular.

That which concludes A, concludes I, and that which concludes E, concludes O. But that which concludes

concludes the Particular does not for all that conclude the General. This is a consequence of the preceding Rule and the first Axiom. But we are to understand that most men are pleas'd to consider these sorts of Syllogisms only according to their most Noble Conclusion which is the General: So that they do not account for a particular sort of Syllogism that wherein it is only concluded of the Particular; because it may be concluded of the Universal.

So that there is no sort of Syllogism, where the Major being A, and the Minor E, the conclusion is O. For (by the 1. Corollary) the Conclusion of an Universal Negative Minor may be always Universal. So that if an Universal Conclusion cannot be drawn, the Reason is, because there can be none at all. Hence A, E, O, never constitute a Syllogism, but when A, E, E, are included.

6 Rule.

From two particular Propositions nothing follows.

For if they are both Affirmatives, the middle Term shall there be taken twice particularly, whether it be the Subject (by the 2. Axiom) or the predicate (by the 3. Axiom.) Now by the first Rule there is nothing concluded by a Syllogism, whose middle Term is taken twice particularly.

But if one of the Premises be a Negative, the Conclusion being the same, by the preceding Rule, there ought to be at least two Universal Terms in the

the Premises (according to the 2 Corollary.) Therefore there must be one Universal Proposition in the two Premises, it being impossible so to dispose the Terms in two Propositions, where there ought to be two Terms taken Universally, but that there must be two Negative Predicates, which would be against the third Rule; or some one of the Subjects Universal, which makes the Proposition Universal.

CHAP. IV.

Of the Figures and Modes of Syllogisms in General. That there can be no more than four Figures.

THE General Rules being established which necessarily ought to be observed in simple Syllogisms, it remains that we observe how many sorts of Syllogisms there are.

Generally there are as many sorts of Syllogisms, as there are different Manners of disposing, according to these Rules, the three Propositions of one Syllogism, and the three Terms of which they are compos'd.

The Disposition of the three Syllogisms according to their four Differences A. E. I. O. is call'd the *Mode*.

The Disposition of the three Terms, that is, of the middle Term, with the three Terms of the Conclusion, is call'd *Figure*.

Now

Now it may be known how many concluding Modes there may be, the various figures not being consider'd, according to which every Mode may constitute several Syllogisms. For by the Doctrine of Combinations, four Terms, as A. E. I. O. being taken three and three, cannot be variously dispos'd in any more than 64 manners. But of these 64 manners, they who will take the pains to consider every one apart shall find that there are—
18 excluded by the 3 and 6 Rule, that nothing is concluded from two Negatives and two particulars.

18 by the 5. That the Conclusion follows the weaker part.

6 by the 4. That nothing can be concluded Negatively from two Affirmatives.

1. That is to say I. E. O. by the 3 Corollary of general Rules.

2. That is to say A. E. O. by the 6 Corollary of general Rules.

Which make in all 54. and by consequence there remain but 10 concluding Modes.

Affirmative	{	A. A. A.	6 Negative.	{	E. A. E.
		A. I. I.			A. E. E.
		A. A. I.			E. A. O.
		I. A. I.			A. O. O.
					O. A. O.
					E. I. O.

But it follows not from hence that there are only four sorts of Syllogisms; in regard that every one of these Modes may compose several sorts; according

ding to the manner, whence arises the Diversity of Syllogisms, which is the various disposition of three Terms, which is call'd Figure as we have already said.

Now for this disposition of three Terms, it only regards the two first Propositions; for the Conclusion is suppos'd before you can make the Syllogism to prove it. And thus when the middle Term can only be dispos'd in four manners, there can be no more the four possible Figures.

For either the middle Term is the Subject in the Major, and the Predicate in the Minor; which makes the first Figure.

Or it is the Predicate in the Major and Minor, which makes the second Figure.

Or it is the Subject both in the one and the other, which makes the third Figure.

Or it is the Predicate in the Major and the Subject in the Minor, which makes the fourth Figure. It being certain, that what suffices necessarily to make a true Syllogism, may be sometimes concluded in this manner. We shall produce Examples afterwards.

Nevertheless, because nothing can be proved from this fourth Manner, but after a manner; not very natural, Aristotle and his followers have not allow'd the name of Figure to this Mode. Yet Gassendi maintains the contrary: So that it is clear the Dispute is only about words, which is to be decided when they shall both agree what they mean by the word Figure.

But they most certainly lye under a mistake, who take for the fourth Figure (which they accuse Aristotle not to have understood) those Syllogisms, wherein the Major and Minor are transpos'd as

Every Body is divisible.

Every thing that is divisible is imperfect.

Therefore, every Body is imperfect.

I admire Gassendus should fall into this snare. For it is ridiculous to take for the Major of a Syllogism, the Proposition which first appears, and for the Minor the second Proposition. For so we might as well take the Conclusion for the major, or the Minor for an Argument, because it is oft times the first or second of the Propositions that compose it: as in these Verses of Horace the Conclusion is the first, the Minor the second, and the Major the third.

Qui melior servo qui liberior sit avaro,

In triviis fixum cum se dimittit ad assem,

Non video: nam qui cupiet, metuet quoque porro

Qui metuens vivit, liber mihi non erit unquam.

All which may be reduc'd into this Syllogism.

He that lives under continual Apprehensions is not free.

Every covetous man lives under continual Apprehensions.

Therefore, no covetous man is free.

Therefore there is no regard to be had to the simple Local Disposition of the Propositions, which make no change in the Intellect. But we are to take for Syllogisms of the first Figure, all those where the middle Term is the Subject of the Proposition, where is found the greater Term or Predicate of the

2. Affirmative.	{	A. A. A.	}	2. Neg.	{	E. A. E.
		A. I. I.				E. I. O.

Which we are to Demonstrate.

These four Modes, to the end they may be more easily retain'd in Memory, have been denoted by certain artificial words; of which the first Syllables denote the three Propositions; and the last vowel of each Syllable the mode of the Propositions. So that these three words have this Convenience in the Schools, that they shew the Species of the Syllogism, which without it cannot be done without a long Circumlocution of words.

B A R-Whoever suffers to die for Hunger those whom he ought to preserve, is a Homicide.

B A- All Rich Men who do not give Alms in pursuance of their necessities suffer those to die with whom they ought to preserve, Ergo,

R A. They are Homicides.

C E. No impenitent Robber can expect to be saved.

L A- All those who dye after they have employed themselves with the goods of the Church without Restitution, are impenitent Robbers.

RENT. Therefore none of those can expect to be Saved.

D A- Whatever makes for Salvation is advantageous.

R I. Some Afflictions make for Salvation.

I. Therefore there are Afflictions that are advantageous.

E Whatever is attended with a just Repentance
is not to be desired.

O I. There are some Pleasures that are attended
With just Repentance.

be Therefore there are some Pleasures that are not
to be desired.

Now in regard that in this Figure the greater
Term is denied or affirmed of the middle Term
open Universally, affirm'd afterwards in the Minor
Con the lesser Term, or the Subject of the Conclu-
sion, it is clear that it is only founded upon two
principles, the one, for Moods Affirmative, the
other for the Negative Moods.

The Principle of the Moods Affirmative.

*Whatever agrees with an Idea taken Universally, a-
grees with all whatever that Idea is affirm'd of, whe-
n it be the Subject of that Idea, or comprehended
within its Extension; For these Expressions are Sy-
nonymous.*

Thus the Idea of *Animal* agrees with all Men,
agrees also with all the *Ethiopians*. This Prin-
ciple has been so explain'd in the Chapter where
we have treated of affirmative Propositions, that
there is no need of any farther Exposition. It shall
now be added that in the Schools it is express'd in
these Terms, *That which agrees with the Consequent,*
agrees with the Antecedent; and that by the Term
consequent is meant a general Idea that is affirm'd of
another, for that in effect the Predicate is drawn by
consequence from the Subject. If he be a Man he
is an Animal.

The Ground of the Negative Modes.

That which is denied of an Idea taken Universally, is denied of all that is affirm'd of that Idea.

A Tree is denied of all Animals, it is therefore denied of all Men, because they are Animals.

It is thus express'd in the Schools, *Whatever is denied of the Consequent, is denied of the Antecedent.* That which has been already spoken in the Chapter of Negative Propositions, is the reason we need no more here.

It is to be observed that only the first Figure concludes in *A. E. I. O.*

And that only the same Figure concludes in *A. E. I. O.* The reason of it is, for that to the end the conclusion may be Affirmative, there is a necessity that the lesser term should be generally taken in the Minor, and by consequence that it should be the Subject of it, and that the Minor term should be the Predicate of it; from whence it comes to pass that the middle Term is taken particularly. It must be therefore taken generally in the Major (by the first general Rule) and by Consequence it must be the Subject of it. Now this is the nature of the first Figure, that the middle Term is the Subject in the Major, and the Predicate in the Minor.

CHAP. VI.

*The Rules, Modes and Principles of the
Second Figure.*

THE second Figure is that where the middle Term is twice predicated. And from hence it follows that to the end it may conclude necessarily, it ought to observe these two Rules.

1. R U L E.

One of the two first Propositions must be Negative, and by Consequence, so must also be the Conclusion by the Sixth General Rule.

For if they were both Affirmative, the middle Term, which is always the Predicate would be taken twice particularly contrarily to the first general Rule.

2. R U L E.

The Major must be Universal.

For the Conclusion being Negative, the greater Term shall be taken Universally. Now the same Term is the Subject of the Major. Therefore it ought to be Universal, and by Consequence render the Major Universal.

Demonstration.

That there can be but four Modes in the Second Figure.

M

Of

Of the ten concluding Modes, the four Affirmative are excluded by the second Rule of this Figure, that one of the Premises ought to be Negative.

O.A.O. is excluded by the second Rule, that the major ought to be Universal.

E. A. O. is excluded for the same Reason, as in the first Figure, because the lesser Term is the Subject in the Minor.

So that only these four Moods remain.

2. General.	{	E. A. E.	2. Particular.	{	E. I. O.
		A. E. E.			A. O. O.

Which four Modes are comprehended under these Artificial Words.

CE- No Lyar is to be believ'd.

SA- Every good Man is to be believ'd.

RE. Therefore no good Man is a Lyar.

CA. All those that belong to Jesus Christ, Crucifie the Flesh.

MES- All those that lead a Life of Pleasure and Voluptuousness, do not Crucifie themselves.

FRES. Therefore none of those belong to Jesus Christ.

FES. No Vertue is contrary to the Love of Truth.

TI- There is a Love of Peace which is contrary to the Love of Truth.

NO. Therefore there is a Love of Peace, which is not Vertue.

BA. All Vertue is accompanied with Discretion.

RO. There are some sorts of Zeal that are not accompanied with Prudence.

C O. *Therefore all sorts of Zeal are not Vertues.*

The foundation of this second Figure.

It would be easie to reduce all these sorts of Arguments to one Principle, should we make use of many words. But it is more advantageous to reduce two to one Principle, and two to another, because their Dependance and Connexion with these two principles, will thereby be made out more Clear and Immediate.

The Principle of the first Arguments in Cesare and Festino.

The first of these Principles, is that which serves also as a Foundation for Negative Arguments of the first Figure, *That whatever is denied of a Universal Idea, is also denied of whatever the Idea is affirm'd, that is of all the Subjects of that Idea.*

For it is clear, that all the Arguments in *Cesare*, and *Festino* are grounded upon this Principle. For example, to shew that no good Man is a Liar; I have affirm'd *to be believed* of every good Man, and I have denied a Liar, of every Man *to be believed*. Saying no Liar is to be believed. I confess the way of denying is somewhat indirect; for when Liar is to be denied of the person to be believ'd, *to be believ'd* is denied of Lyars. But when Universal Negative Propositions are simply converted, by denying the Predicate of a Subject Universal, the Universal Subject of the Predicate is also denied.

This shews us however that the Arguments in *Cesare* are in some manner indirect, since that which ought to be denied, is not denied but indirectly. But because that does not hinder the Intellect from comprehending easily and clearly the force of the Argument, they may pass for direct, if this word may signify a clear and natural Argument.

This shews us also that these two Modes of *Cesare* and *Festino* nothing differ from the two Modes of the first Figure, *Celarent* and *Ferio*, only that the Major is converted. But tho we may say that the Negative Modes of the first Figure are more direct, it often happens nevertheless that these two Modes of the second Figure that are answerable to them, are both more natural and more easie to be understood. For example, as to what we first propos'd tho the direct order of Negation requir'd, that we should have said, no person that is to be believ'd is a Lyar, which had made an Argument in *Celarent* yet it is more clear to the Understanding, that no Lyar is to be believ'd.

The Grounds of the Arguments in Camestres and Barocco.

In these two Modes the middle Term is affirm'd of the predicate of the Conclusion, and denied of the Subject, which shews that they are directly grounded upon this Principle. *Whatever is comprehended in the Extension of an Universal Idea, agrees with none of the Subjects of which that is denied.* The Predicate of a Negative Proposition being taken according

to its full Extent, as has been prov'd in the second Part.

True Christian is comprehended under the extent of Charitable, in regard every true Christian is Charitable. Charitable is denied of one that has no pity upon the Poor, and therefore a true Christian is denied to have no pity upon the Poor which produces this Argument.

Every True Christian is Charitable :

No person without pity toward the Poor is Charitable,

Therefore no person without Pity toward the Poor is a true Christian.

CHAP. VII.

The Rules, Modes and the Grounds of the Third Figure.

IN the third Figure, the middle Term is twice the Subject. Whence it follows.

1. RULE.

That the Minor ought to be Affirmative.

Which we have prov'd by the first Rule of the first Figure ; because that both in the one and the other the predicate of the conclusion is predicate in the Major.

2. R U L E.

There is no concluding but Particularly.

For the Minor being always *Affirmatively*, the lesser Term, which is the predicate is particular therefore cannot be Universal in the Conclusion where it is the Subject ; which would be to conclude a General from a Particular.

Demonstration.

That there can be but six modes in the third Figure.

Of the ten concluding Modes, A. E. E. and A. E. O. O. are concluded by the first Rule of this Figure, that the Minor cannot be Negative.

A.A.A. E.A.E. are excluded by the second Rule that the Conclusion cannot be general.

So that only six Modes remain.

3. Affirmative. $\left\{ \begin{array}{l} \text{A.A.I.} \\ \text{A.I.I.} \\ \text{I.A.I.} \end{array} \right.$

3. Neg. $\left\{ \begin{array}{l} \text{E.A.O.} \\ \text{E.I.O.} \\ \text{O.A.O.} \end{array} \right.$

All these Modes are reduc'd under six artificial words, tho in another order.

D A- The Divisibility of Infinite matter cannot be comprehended.

R A- The Divisibility of Infinite matter is most certain.

P T I. Therefore there are some most certain things which are Incomprehensible.

F E. No man can desert himself.

L A P. Every man is an Enemy to himself.

T O N. Therefore some Enemies cannot be deserted.

O I. *There are some wicked Men that abound in wealth.*

A- *All wicked Men are miserable.*

M I S. *Therefore some miserable Men abound in Wealth.*

A- *Every Servant of God is a King.*

I- *There are Servants of God that are Poor.*

I. *Therefore there are some poor Men that are Kings.*

O- *There are some sorts of Anger not to be blam'd.*

C A R- *All Anger is a Passion.*

O- *Therefore some Passions are not to be blam'd.*

A F E- *No absurdities are Elegant.*

F R I- *There are absurdities in Figures.*

S O N. *Therefore there are Figures that are not Elegant*

The Ground of the third Figure.

The two Terms in the Conclusion being Attributes in the Conclusion, and fix'd to the same Term in the Premises, which supply the place of a middle Term, the Affirmative modes of this Figure may be reduc'd under this principle.

The Ground of the Affirmative Modes.

When two Terms may be affirmed of one and the same thing, the one Term may be affirmed of the other particularly.

For being united with the same thing, because they both agree with it; it follows that they are sometimes united together, and therefore the one may affirm of the other particularly. But that we

may be assured that two terms are affirm'd of one and the same thing, the middle Term must be taken universally. For should it be taken twice particularly, they would be thought to be two several parts of one common Term; which would not be the same thing.

The Ground of the Negative Modes.

When of the two Terms the one may be denied, the other affirmed of the same thing, the one may be denied of the other particularly.

For it is certain they are not always conjoin'd when they are not united in this thing. Therefore the one may sometimes be denied of the other, that is, that the one may be denied of the other taken particularly; but for the same reason, the middle Term must be always taken universally, that it may be one and the same thing.

CHAP. VIII.

Of the Modes of the fourth Figure.

THE fourth Figure is that wherein the middle Term is the predicate of the Major, and the Subject in the Minor; but it is so regular, that it is hardly worth while to set down the Rules, were it not that nothing may be wanting to demonstrate all the simple Modes of Arguments.

I. RULE

1. RULE.

When the Major is Affirmative, the Minor is always Universal.

For the middle Term is taken particularly in the Major Affirmative. And therefore by the first General Rule, it must be taken Universally in the Minor, because it is the Subject of it.

2. RULE.

When the Minor is Affirmative, the Conclusion is always Particular.

For the lesser Term is the Predicate in the Minor. And by consequence it is taken particularly when it is Affirmative; whence it follows by the second General Rule, that it ought to be also particular in the conclusion, which renders it particular, as being the Subject of it.

3. RULE.

In the Negative Modes the Major must be General.

For the conclusion being Negative, the greater Term is there taken generally. And therefore by the second General Rule, it must be taken generally in the Premises. Now it is the Subject of the Major, as well as in the Figure, and therefore by consequence as well here as in the second Figure, being generally taken, it must render the major General.

Demonstration.

That there can be but five Modes in the fourth Figure.

Of the ten concluding Modes, A. I. I. and A. O. are excluded by the first Rule.

A. A. A. and E. A. E. by the second.

O. A. O. by the third.

So that only five remain.

2. Affirmative.	{	A. A. I.	{	A. E. I.
		I. A. I.		E. A. O.
			3. Neg.	E. I. O.

These five Figures are reduced under these five artificial words.

BAR- *All miracles of Nature are ordinary.*

BA- *What is ordinary does not move us.*

RI- *Therefore some things do not move us which are Miracles of Nature.*

CA- *All the evils of this Life are transitory.*

LEN- *All transitory Evils are not to be fear'd.*

TES- *Therefore no Evil of this Life is an Evil to be fear'd.*

DI- *Some Fools speak Truth.*

BA- *Whoever speaks Truth, is worthy to be admired.*

TIS- *Therefore there are some to be admired, who cease not however to be Fools.*

FES- *No vertue is a natural quality.*

PA- *Every natural quality has God for its Author.*

MO- *Therefore some Natural qualities that have God for their Author, are not Vertues.*

FRE- *No miserable Person is content.*

There are contented Persons that are Poor.

OM. *Therefore there are some poor Men that are not Miserable.*

It is to be observed that these five modes are generally denoted by these words, *Baralipson, Celantes, Dabitis, Fapesmo, Trisesomorum*; which proceeded from this, that Aristotle not having made any separated Figure of these Modes, they are not look'd upon, but as indirect modes of the first Figure, wherein the Conclusion was Inverted, the true Subject being the Term predicated. For which reason, they who follow'd that Opinion, have put for the first Proposition, that wherein the Subject of the Conclusion enters, and for the Minor, that wherein the Predicate enters.

And therefore to this first Figure they assigned nine Modes, four direct, and five indirect, which they reduced under these two Verses.

*Barbara Celarent, Darii, Ferio, Baralipson,
Felapton, Disamis, Datissi, Bocardo, Ferison.*

But in regard the conclusion being always supposed, as being that which is to be prov'd, cannot properly be said to be ever inverted, we thought it more advantageous to take always for the Major, the Proposition where the Attribute of the Conclusion enters, which oblig'd us that we might put the Major first, to invert the order of the Syllables of those Artificial words in this manner.

Barbari, Calentes, Dibatis, Fespasino, Friseson.

A Recapitulation of the several sorts of Syllogisms.

From what has been said, we may conclude that there are Nineteen sorts of Syllogisms, which may be variously divided,

- | | | | | |
|--------------------------|---|-----------------|---|------------|
| 1. Into | { | Generals 5. | { | Affirm. 7. |
| 2. Into | | Particulars 14. | | Negat. 12. |
| 3. Into such as conclude | { | A. 1. | { | E. 4. |
| | | I. 6. | | O. 8. |
| | | | | |

4. According to several Figures, in subdividing 'em by the Modes, which has already been sufficiently done by the explication of every Figure.

5. On the contrary according to the Modes in subdividing 'em by the Figures, which will produce Nineteen species of Syllogisms, because there are three Modes, of which every one conclude in one Figure only; six, of which every one concludes in two Figures; and one that concludes in all the four.

CHAP. IX.

Of complex Syllogisms, and how they may be reduced into common Syllogisms, and how judged by the same Rules.

WE must confess, that if there be any thing wherein Logic does good, there is much more wherein it does mischief: and we must acknowledge

knowledge at the same time, that there are none to whom it does more Injury than those who vain-gloriously affect to appear most excellent in the Art. For this Affectation it self being a mark of a Wit mean, and of little Solidity, it happens usually that while they employ their whole time rather upon the bark of Rules, than in the Study of good Sence, they are easily induced to reject, as evil Arguments such as are very good, not having discretion enough to accommodate them to the Rules themselves, which only serve to deceive them, being but imperfectly understood.

To avoid this Vanity which favours so much of Pedantry so unbecoming a generous Spirit, we ought to examine the solidity of an Argument rather by the Light of Reason, than by Forms. And one of the ways to succeed is, when we meet with any difficulty, to form other Syllogisms of the same nature upon different Matters, and when it clearly appears to us that they conclude right, to consider only true Sence. For then, if we find any thing that does not seem conformable to Rules, we ought rather to believe 'tis the Defect of our Understanding, and not that they are contrary to Rule.

But those are the Arguments of which it is most difficult to make a true Judgment; and in which it is most easie to be deceived; which as we have already said, are call'd *Complex'd*, not simply, because they consist of complexed propositions; but because the Terms of the Conclusion being complex'd, were not taken entirely in any of the premises to be

be join'd with the middle Term, but only with part of one of the Terms. As in this Example.

The Sun is a thing Insensible.

The Persians adore the Sun.

Therefore the Persians adored a thing Insensible.

Where we find that the conclusion having for its Predicate, *adored a thing Insensible*, there is but one part in the Major, that is a thing Insensible, and ador'd in the Minor.

As to these Syllogisms therefore we shall do two Things.

First, we shall shew how they may be reduced to Incomplex'd Syllogisms, of which we have spoken hitherto, that we may be able to examine 'em by the same Rules.

In the second place we shall demonstrate, that there may be general Rules given for the quick Examination of the Truth, or Falshood of these Syllogisms, without the help of Reduction.

And indeed it is a strange thing, that although Logic be so highly valued above its deserts, even to maintain that it is absolutely necessary for the Acquisition of the Sciences, it is yet so superficially handled, that there has been nothing said of those Things which are most useful in it. For they generally content themselves with giving Rules for simple Syllogisms, which are so clear, that no body ever thought to propose them seriously in any Discourse; for whoever minded such a Syllogism as this? Every Man is an Animal, *Peter* is a Man, therefore *Peter* is an Animal.

But they never trouble themselves to apply the Rules of Syllogisms to Arguments, whose Propositions are Complex'd, tho' it be oft-times very difficult, and that there are many Arguments of this Nature, which appear to be false; but yet are very true. Besides that these sorts of Arguments are much more in use than those that are entirely simple; which is more easie to be shewn by Examples than Rules.

I. EXAMPLE.

For Example, we have affirm'd that all Propositions compos'd of Verbs Active, are in some manner complex'd, and of these Propositions oft-times Arguments are fram'd, whose form and force of concluding, it is a hard matter to understand; as in this.

The Divine Law commands us to honour Kings.

William the Third is King.

Therefore the Divine Law commands us to honour

William the Third.

Some Persons wanting Judgment, have accused these sorts of Syllogisms of being defective. Because, say they, they are compos'd of pure Affirmatives in the second Figure, which is an essential defect. But these Persons plainly make it appear, that they consulted more the Letter and outward Rind of Rules, than the Light of Reason by which these Rules were found out; for this Argument is so true and concluding, that if it were contrary to the

the Rule, it would be an Argument that the Rule itself was false, and not the Syllogism.

I say then that this Syllogism is true; for in the proposition, *the Law of God commands us to honour Kings*, the word *Kings* is taken generally for all Kings in particular, and by consequence *William the Third* is of the Number of those Kings, whom the Law of God commands us to Honour.

In the Second place I say, that the word *King* which is the middle Term, is not the Predicate in this Proposition, *The Law of God commands us to honour Kings*, though it be join'd to the predicate *Commands*, for that which is truly the Predicate, is affirm'd and agrees with the Law of God. 2. The predicate is restrain'd to the subject. Now the word *King* is not restrain'd in this proposition, *The Divine Law commands us to honour Kings*, because it is taken generally.

If therefore any one demand where the mystery lies, That that word is the subject of another proposition envelopped in the former. For when I say, *The Law of God commands us to Honour Kings*, I attribute *Command* to the Law, and *Honour* to Kings, as if I should have said, *The Law of God Commands that Kings should be honour'd*.

Moreover in this Conclusion, the Law of God commands us to honour *William the Third*. *William the Third* is not the Predicate, though join'd to the predicate; but on the contrary the subject of the latent proposition, as if I had said, the Law of God commands that *William the Third* should be honour'd.

So then the propositions being unfolded in this manner.

The Divine Law commands that Kings should be honoured.

William the Third is a King.

Therefore the Divine Law commands that William the Third be honoured.

It is clear, that the whole Argument consists in these propositions.

Kings ought to be honoured.

William the Third is a King.

Therefore William the Third ought to be honoured.

And that this proposition, the Divine Law commands, which appear'd to be the principle, is only a proposition incident to the Argument, which is join'd to the Affirmation of which the Law of God is a proof.

And it is also clear, that this Syllogism belongs to the first Figure in *Barbara*, the singular Terms, *William the Third*, passing for Universal, as being taken in their entire Extent.

2. *Example.*

For the same Reason this Argument which seems to be of the second Figure, and conformable to the rules of that Figure is invalid.

We ought to believe the Scripture.

Tradition is no Scripture.

Therefore we ought not to believe Tradition.

For it ought to have been reduced to the first Figure, as thus.

Tha

The Scripture ought to be believed.

Tradition is not the Scripture.

Therefore Tradition is not to be believed.

Now there is nothing concluded from a Negative Minor in the first Figure.

3. EXAMPLE.

There are other Arguments which seem to be purely Affirmative in the second Figure, which nevertheless are most concluding ; as thus,

Every good Shepherd is ready to lay down his Life for his Sheep.

But there are now adays few Shepherds who are ready to lay down their Lives for their Sheep.

Therefore there are now adays few good Shepherds.

Now that which makes this Argument good is this, That there is no Conclusion affirmatively, but in appearance ; for the Minor is an Exclusive Proposition which contains in its Sense this Negative, *Several Shepherds now adays are not ready to lay down their Lives for their Sheep.* And the Conclusion reduces it self to this Negative, *Several Shepherds now adays are not good Shepherds.*

4. EXAMPLE.

Here is an Argument, which being of the first Figure, seems to have a Minor Negative, and yet its very true.

All they, from whom what they delight in cannot be taken away by force, are safe from the assaults of their Enemies.

But from those, who love God alone, those things in which they delight cannot be taken away.

Therefore all they who love God alone, are free from assaults of their Enemies.

That which makes this Argument good is, that the Minor is not Negative but in appearance, being really Affirmative.

For the Subject of the Major, which ought to be the Predicate of the Minor, is not, *They from whom can be taken what they delight in*; but quite contrary, they from whom those Things cannot be taken. Now this is that which is affirm'd of those that love none but God alone, according to the sense of the Minor.

Now all they who love none but God alone, are of the number of those from whom that which they delight in cannot be taken away. Which is visibly an Affirmative Proposition.

5. EXAMPLE.

And this happens also when the Major is a Proposition Exclusive; as thus,

The Friends of God are only happy.

Now there are some Men who are not the Friends of

God.
Therefore there are some Rich Men that are not happy.

For the Particle *only* is the reason that the first Proposition of this Syllogism is equivalent to these two, *The Friends of God are happy, but other Mortals, who are not the Friends of God, are not happy.*

Now

Now in regard the force of the Argument depends upon the second Proposition, the Minor, which seem'd to be Negative becomes Affirmative because the Subject of the Major, which ought to be the predicate in the Minor, is not *the Friends of God*, but *they who are not the Friends of God* so that the Syllogism ought to be reduced into the *Term*.

All those who are not the Friends of God are not happy.

But there are some Rich Men who are not in the number of those who are the Friends of God.

Therefore there are some Rich Men who are not happy.

Now because it is not necessary to express the Minor in this manner, but that the form of a Negative Proposition may be allow'd it, therefore it is the same thing to say Negatively, as affirmatively, that a Man is of the number of those who are not the Friends of God.

6. Example.

There are many other Syllogisms of the same Nature, whose Propositions appear Negative, and yet they are true, because there is one which is not Negative but in appearance, and which is really affirmative, as we shall make appear by this Example.

That which has not Parts cannot perish by the dissolution of Parts.

The Soul has no Parts.

There-

Therefore the Soul cannot perish by the dissolution of

There are some who bring these sorts of Syllogisms to shew that that same Logical Axiom (nothing is to be concluded from pure Negatives is not true. But they did not consider that to the Sence, the Minor of this Syllogism and others of the same nature is *Affirmative*, because the middle Term which is the Subject of the Major, is its predicate. Now the Subject of the Major is not, *Whatever has Parts*, but whatever has no parts. And so the Sence of the Minor is, *Our Soul is something which has no parts*, which is an Affirmative proposition of a Negative Predicate.

The same Persons prove that these Syllogisms are concluding by these Examples.

John is not rational.

Therefore John is not a Man.

No Animal sees,

Therefore John does not see.

But they ought to consider that those Examples are only *Enthymenes*; and no *Enthymene* concludes, but by vertue of a Proposition subintellecled, and consequently ought to be reserved in the Mind, though not expressed. Now in both these Examples, the Proposition subintellecled is necessarily *Affirmative*, thus, *Every Man is reasonable, John is not reasonable, Therefore John is no Man; and every Man is an Animal, no Animal sees, therefore no Man sees.* So that it cannot be said these Syllogisms are purely Negative: And by Consequence *Enthymenes* which never

never conclude but because they inclose the whole Syllogisms in the Mind of the Argumentator, and not be brought as an Example to shew that some Syllogisms purely Negative, truly conclude.

CHAP. X.

A General Principle by the help of which without any other Reduction to Figures and Modes the Truth or Falshood of all Syllogisms may be known.

WE have seen how to judge of Complex Syllogisms, whether conclusive or destructive; by reducing them to the forms of common Syllogisms, and examining them by the common Rules. But as it is not likely that our Understanding should stand in need of that Reduction, to judge of the force of Syllogisms, so we bethought our selves that there must be some more General Rules, upon which the Common Rules depend, by which an easie judgment may be given of the Truth or Falshood of all manner of Syllogisms. And this is that which came into our Thoughts.

When a Proposition, the Truth of which is so clear, is offered to be proved, there seems nothing to be done, to find out a Proposition not known which confirms that, which for that reason may be called the *Containing Proposition*.

But because the first cannot contain the Second expressly and in so many words; for so it would not be a different thing and consequently prove useless for the delucidation of the First, it is necessary that there should be another proposition, to show that the *Containing Proposition* contains in effect that other which is to be proved, and this Last may be an *Applicative Proposition*.

In Affirmative Syllogisms it is not much material many times which is called the *Containing Proposition*; because that both in some manner contain the Concluding Proposition, and for that they mutually serve to shew that this is contain'd in the other.

As for Example, if I question whether a vicious Man be happy, and argue thus.

Every Slave to his Passion is unhappy,

Every vicious Man is a slave to his Passions,

Therefore every vicious Man is unhappy.

Now take either of the Propositions and you may say that the one contains the Conclusion, and the other shews it. For the Major contains it, in regard that a *slave to his Passions* comprehends *vicious*; that is, that *vicious* is enclosed in its Extent, and is one of its Subjects, as the Minor makes manifest.

Nevertheless, when the Major is most commonly Universal, it is usually look'd upon as the *Containing Proposition*, and the Minor as the *Applicative*.

As for Negative Syllogisms, whereas there is in them but one Negative Proposition, and that the Negative

Negative is properly enclosed in the Negation only, it seems that the negative Proposition ought always to be taken for the *Container*, and the Affirmative for the *Applicative*; whether the Negative be the Major, as in *Celarent, ferio, Cesare, festino*; or whether it be the Minor as in *Camestres* and *Baroco*: if I were to prove by this Argument, that no covetous Man is happy.

Every happy Man is content,

No covetous Man is content,

Therefore no covetous Man is happy.

It is more natural to say that the Minor, which is Negative, contains the Conclusion which is also Negative, and that the Major demonstrates it. For the Minor, *No covetous Man is contented*, totally separating content from covetous, separates also happy; since according to the Major, happy is totally excluded in the extent of Content.

It is no difficult thing to shew, that all the Rules which we have given serve only to shew that the Conclusion is contain'd in one of the first Propositions, and that the other makes the thing clear. And that Arguments are not defective but when they fail to observe that Rule, and always true when they do observe it. For all these Rules are reduced to two principal ones, which are the foundation of the rest; the one, *That no Term can be more general in the Conclusion than in the Premises*. Now this visibly depends upon this general Principle, that the Premise ought to contain the Conclusion. Which could never be, if the same Term being in the Premise

in the Conclusion, there should be less extent in the premises than in the Conclusion. For the less general never contains the more general, *some men*, never contains *All-men*.

The other General Rule is, *That the Middle Term ought to be taken at least once Universally*, which depends upon this Principle, *That the Conclusion ought to be contain'd in the Premises*. For suppose we were to prove, *That some one friend of God is poor*; I say, we shall never evidently find, that this Proposition contains the Conclusion, but by another Proposition, where the middle Term which is *Holy*, may be taken universally. For it is visible, that to the end this Proposition, *Some Saint is poor*, may contain the Conclusion, *some Friend of God is poor*, it is requisite, and suffices that the Term *some Holy Person*, contains the Term *some friend of God*. For as to the other Term both Propositions have it in common. But now the particular Term has no determined Extension; nor does it certainly contain any thing besides what it encloses within its comprehension and

And by consequence, to the end the Term, *some Holy Person*, may contain the Term, *some Friend of God*, it is requisite that *Friend of God* be contained within the comprehension of the *Idea* of *Holy*.

Now whatever is contained in the comprehension of an *Idea*, may be universally affirmed of it. Whatever is contained in the comprehension of the *Idea* of a *Triangle* may be affirmed of all *Triangles*. Whatever is contained in the *Idea* of *Man*,

may be affirm'd of *all Men*. And by consequence to the end that *friend of God* may be enclos'd in the Idea of *Holy*, it is requisite that *every holy Person be a friend of God*. Whence it follows that the Conclusion, *some friend of God is poor*, cannot be contain'd in this Proposition, *some holy Man is poor*, when the middle Term *Holy* is taken particularly, but by vertue of a Proposition where it may be taken universally, since it ought to shew that *friend of God* is contained in the comprehension of the Idea of *Holy*. Which it cannot shew but by affirming *friend of God*, of *Holy*, taken universally thus, *every holy person is a friend of God*. And by consequence none of the Premises would contain the Conclusion, if the middle Term being taken particularly in one of the Propositions, were not taken universally in the other.

CHAP. XI.

The Application of this General Principle to several Syllogisms which seem to be intricate.

KNowing then by what we have already said in the Second Part, the meaning of comprehension and extent of Terms, by which it may be judg'd whether one proposition does or does not contain another, we may judg of the truth or invalidity of all Syllogisms, without considering whether

it be simple or compos'd, complex or incomplex, and without any regard to Figures or Modes, by this General Principle. Some one of the Propositions ought to contain the Conclusion and the other to demonstrate that which is contained.

I. *Syllogism.*

I question whether this Syllogism be true.

It is the duty of a Christian, not to praise those that commit wicked Actions.

But they who fight Duels commit a wicked Action, Therefore it is the duty of a Christian not to commend those that fight Duels.

I should lose time in examining to what Mode or Figure this Syllogism ought to be reduced. And therefore it is sufficient to consider whether the Conclusion be contained in either of the two first Propositions; and whether the other makes it out. Now I find that the Major proposition has not any thing different from the conclusion, but only there is in the one, *they who commit wicked Actions*, and in the other, *they who fight Duels*.

Now that Propositions wherein there is *committing wicked Actions*, will contain that wherein there is *fighting Duels*; provided that *Committing wicked Actions*, contains *fighting Duels*.

Now 'tis visible by the Sense, that the Term, *they who Commit wicked Actions*, is taken Universally, and that it extends to all that commits wicked acts of what sort soever. So that the Minor, *They who fight Duels commit a wicked Action*, manifesting

that *fighting Duels* is contain'd under the Term *Committing wicked Actions*, it evidences also that the first Proposition contains the Conclusion.

2. E X A M P L E.

I question the Truth of this Syllogism.

The Gospel promises Salvation to Christians,

There are wicked Persons who are Christians,

Therefore the Gospel promises Salvation to wicked Persons.

To judg of this I am only to consider, that the Major cannot contain the Conclusion, if the word *Christians* be not generally taken for all Christians, and not for some Christians only. For if the Gospel promises Salvation only to some Christians, it does not follow that it promises Salvation to the Wicked who profess Christianity ; because such Christians may not be of the number of those Christians to whom the Gospel promises Salvation. Therefore this Argument concludes well ; but the Major is false, if the word *Christians* be taken for all Christians. And it concludes ill, if it be taken only for some Christians ; for then the first Proposition will not contain the Conclusion.

But to know whether it ought to be taken Universally, that must be examined by another Rule which we have given in the second part, *as to exclusive Acts whatever is affirmed of 'em is taken Universally, when it is expressed indefinitely* : But now tho this Term, *they that commit wicked acts*, in the first example, and *Christians* in the second be

parts of the Predicates, yet they supply the place of Subjects, of which the other parts of the same Predicates are affirmed; for they are the parts of which the affirmation is made, that *they are not to be praised*, that *they are promised Salvation*. And by consequence not being restrain'd, they are to be taken Universally. And so both Syllogisms are true in Form. But the Major of the second example is false, if only they are understood by the word Christians who live conformably to the Gospel; because no wicked persons live conformably to the Gospel.

3. E X A M P L E.

By the same principle it is easie to see that this Syllogism is invalid.

The Law of God commands us to obey Secular Magistrates;

Therefore the Law of God does not command us to obey Bishops.

For here neither of the Premises contains the Conclusion. For it does not follow that when the Law of God commands one thing, it does not command another. And thus the Minor shews that Bishops are not comprehended under the Term *Secular Magistrates*, and that the command to honour *Magistrates* does not comprehend *Bishops*. Nor does the Major say that God has made no other command than that, as it ought to have done, that by the Minor it might have been apparent, that it comprehended the Conclusion. For which reason the following Syllogism is true.

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4. EXAMPLE.

Christianity does not oblige Servants to obey their Masters but in things which are agreeable to the Law of God; but procuring of Harlots is contrary to the Law of God.

Therefore Christianity does not oblige Servants to obey their Masters in procuring of Harlots.

For the Major contains the Conclusion, since in the Minor, procuring of Harlots is included in the number of those things which are contrary to the Law of God, and that the Major being exclusive is the same as if it had been said, *The Law of God does not oblige Servants in things which are contrary to the Law of God.*

5. EXAMPLE.

This Sophism also may be detected by the help of this General Principle.

He that says you are an Animal says true.

He that says you are a Goose, says you are an Animal,

Therefore he that says you are a Goose, says true.

For it is sufficient to say, that neither of the two first Propositions contains the Conclusion. For if the Major contain'd it, not being different from the Conclusion, but only in the word *Animal* in the Major, and *Goose* in the Conclusion, of necessity, *Animal* should have comprehended *Goose*: But *Animal* is not taken particularly in the major, because it is the Predicate of the Inci-

dent

ent affirmative Proposition, *you are an Animal*; and consequently it cannot contain Goose but in its Comprehension. For proof of which, *Animal* should be taken universally in the Minor by affirming Goose of every Animal, which is neither done nor can be done, seeing that Animal is taken particularly in the Minor, being as well there as in the Major, the predicate of the Incident Proposition *you are an Animal*.

In the same manner may be discover'd that ancient Sophism quoted by St. *Austin*.

You are not what I am.

I am a Man.

Therefore you are no Man.

This Argument is Invalid by the Rules of Figures, as being of the first; and for that the first Proposition which is here the Minor is a Negative. But it is sufficient to say that the Conclusion is not contained in the first Proposition, nor does the second [*I am a Man*] make it out to be so. For the Conclusion being Negative, the Term man is here taken Universally, and so cannot be contained in the Term [*what I am*] because he that so argues is not *all Men*, but *some one Man*. Which appears from hence for that in the *Applicative* proposition, he only says *I am a Man*; where the Term of *Man* is restrain'd to one particular Signification, because it is the Predicate of an Affirmative proposition. Now the General is never contained in the particular.

C H A P. XII.

Of Conjunctive Syllogisms.

SYllogisms Conjunctive are not all those Syllogisms, whose propositions are Conjunctive Compos'd, but those whose Major is so compos'd that it includes the whole Conclusion. They may be reduced to three sorts *Conditional, Disjunctive, Copulative.*

Of Syllogisms Conditional.

Syllogisms Conditional are those, where the Major is a Conditional Proposition that contains the whole Conclusion.

If there be a God, he is to be belov'd.

But there is a God.

Therefore he is to be Belov'd.

The Major consists of two parts, the first is call'd the Antecedent, *If there be a God*; the second call'd the Conclusion; *he ought to be Belov'd.*

This Syllogism may be of two sorts, because that from the same Major may be form'd two Conclusions.

The first is, when having affirm'd the consequent of the Major, the Antecedent is affirm'd in the Minor, according to this Rule, *the Antecedent being granted, the Consequent is granted.*

If Matter cannot move of it self, it must have its first motion from God.

But matter cannot move of it self.

Therefore it must have its first Motion from God.

The second is, when the Consequent is taken away, to take away the Antecedent according to the Rule, take away the consequent, and the Antecedent is taken away.

If any one of the Elect perish, God is deceiv'd.

But God is not deceiv'd.

Therefore not any one of the Elect perish.

This was the Argument of St. Austin; *If any*

of the Elect perish, God is deceiv'd; but none perish, be-

cause God is not deceiv'd.

These conditional Arguments are false two manner of ways. First when the Major includes a proposition quite from the purpose, and whose consequence is contrary to all Rules; as when I conclude a general from a particular, as in saying, if we deceive our selves in any thing, we deceive our selves in all things.

But this falshood of these Syllogisms in the Major relates rather to the Matter than the Form. So they are never look'd upon as vicious in Form, when there is a false conclusion drawn from a Major true or false, consonant or contrary to Reason, which is done two ways.

First when the Antecedent is inferr'd from the consequent in this manner.

If the Chineses are Mahumetans they are Infidels.

But they are Infidels.

Therefore they are Mahumetans.

The second sort of false conditional Arguments,

is when from the denial of the Antecedent, the denial of the Consequent is inferred ; as in the example.

If the Chineses are Mahumetans, they are Infidels.

But they are not Mahumetans,

Therefore they are not Infidels.

Nevertheless there are some of these conditional Arguments which seem to have this last defect, which are nevertheless very true, because there is an exclusion subintellected in the major, tho not expressed, as for example. *Cicero* having made a Law against those that bought voices, and *Murena* being accused for breach of that Law, *Cicero* speaks for him, and thus argues in his own Justification, being reproach'd by *Cato* for pleading against his own Law. *Indeed if I defended the Bribery given, and defended the Fact as well done, I should do wickedly, tho another had made the Law ; but when I defend nothing committed against the Law, Why should the making of a Law hinder my defence.*

This Argument is like that of a great Blasphemer, who to excuse himself thus argued : *If I denied there was a God I should be a very wicked Person, but tho I Blaspheme, I do not deny there is a God, therefore I am no wicked Person.* This Argument is Invalid, because there are other Sins besides Atheism that render a man Wicked. But that which makes *Cicero's* Argument good (tho proposed by *Ramus* as an Argument of a false Syllogism) is this, that it encloses an exclusive particle in the Sence, and which might be more distinctly express'd under these Terms.

It would be only then that they could reproach me for having acted against my own Law, should I confess that *Venena* had purchas'd voices, and yet for all that I should justifie the Act.

But I assert that he was not guilty of purchasing voices,

And therefore I do nothing against my own Law.

The same thing may be said of that Argument of *Venus* speaking to *Jupiter* in *Virgil*.

Si sine pace tua, atque invito numine Troes

Italiam petiere, luant peccata, neque illos

Furveris auxilio: Sin tot Responſa ſequuti

Quæ ſuperi manesque dabant, cur nunc tua quifquam

Flectere juffa poteſt, aut cur nova condere fata?

Which Argument may be expreſs'd in theſe Terms.

If the Trojans adventur'd into Italy againſt the good will of the Gods, they deſerved puniſhment.

But they did not adventure againſt the good will of the Gods,

Therefore they do not deſerve puniſhment.

Here therefore is ſomething to be ſupplied, otherwiſe it would be like to this that concludes nothing.

If Judas had entered into the Apoſtleſhip without being called he ought to have been rejected of God.

But he did not enter into it uncalled,

Therefore he ought not to be rejected of God.

But that which makes the Argument of *Venus* to be true is this, that the major is to be conſidered as
exclusive

exclusive in the Sence ; as if it had been thus press'd.

Then only had the Trojans to have been punish'd have been thought unworthy of the gods, if they had ventured into Italy against their wills.

But they did not adventure against their wills, Therefore, &c.

Or it may be said, which is the same thing, those affirmative words *sine pace tua*, &c. include this Negative in Sence.

If the Trojans did not adventure into Italy but order of the Gods, it is not just that the Gods should abandon 'em.

But they did not adventure 'em, but by order of gods.

Therefore, &c.

Of Syllogisms Disjunctive.

Disjunctive Syllogisms are those, whose first proposition is disjunctive ; that is, whose parts are united by the word *Or*, like that of *Cicero*.

They who killed Cesar are Parricides, or defenders of the publick Liberty,

But they are not Parricides,

Therefore they are defenders of the publick Liberty.

Of these Syllogisms there are two Sorts : the first when one part is taken away to preserve the other, as in the foregoing Syllogism or this that follows,

All wicked people ought to be punished either in this world or the other ;

But

But there are some wicked people that are not punished in this world,

Therefore they shall be in the other.

Sometimes there are three members in Syllogisms of this Sort ; and then two members are to be taken away to preserve one. As in that Argument of St. Austin in his Book of Lying.

Either we must believe good men, or we must believe those who we believe ought sometimes to lie. Or we must not believe that good men do sometimes lye.

The first is pernicious, the second foolish : it remains then that good men never lie.

The second Sort, though less natural, is when we admit one of the parts to take away the other.

St. Bernard testifying that God had confirmed by his Miracles the preaching of his Cross, was either a Holy Man, or an Impostor.

But he was a Holy Man,

Therefore he was no Impostor.

The disjunctive Syllogisms are not false, but only in the falsity of the Major, wherein the distinction is not exact, there being a middle Term between two opposite members : As if I should say,

We are to obey Princes in what they command contrary to the Law of God or revolt from 'em,

But we are not to obey 'em, in what is contrary to the Law of God,

Therefore we must revolt from 'em.

Or,

We must not revolt from 'em,

Therefore we must obey 'em in what they command contrary to the Law of God.

Both

Both these Syllogisms are false, because in the conjunctions there is a medium that intervenes which has been observed by the Christians, which is to suffer those things patiently, rather than do any thing contrary to the Law of God, and yet not revolt from their Princes.

These false disjunctions are in part the common Springs whence arise all the false Arguments among men.

Of Copulative Syllogisms.

These Syllogisms are but of one Sort, when the proposition Copulative and Negative, the one part is confirmed, the other rejected.

No man can be both together a Servant of God, and an Idolizer of his money,

But a covetous man is an Idolizer of his money,

Therefore he is not a Servant of God.

This sort of Syllogism does not necessarily conclude, when one part is taken away to fix the other, as may be seen by this Argument, drawn from the same proposition.

No man can be at the same time a Servant of God, and an Idolizer of his money,

But the prodigal are no Idolizers of their money,

Therefore they are Servants of God.

CHAP. XIII.

*Of Syllagisms whose Conclusions are Con-
ditional.*

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WE have seen that a perfect Syllagism cannot have less than three Propositions. But this is only true when they conclude absolutely, not hypothetically. For so the conditional proposition may include one of the premises besides the conclusion, and sometimes both.

For example, if I would prove that the Moon is a rough uneven Body, and not polish'd like a mirror, as Aristotle thought it to be, I cannot absolutely conclude but by the help of three Propositions.

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Every Body that reflects its light from all parts is rugged and uneven.

The Moon reflects her light from all parts,

God,

Therefore the Moon is a rugged and uneven Body.

But to conclude conditionally, I need no more than two Propositions in this manner.

Every Body that reflects its light from all parts is rugged and uneven,

Therefore if the Moon reflect her light from all parts, she is a rugged and uneven Body.

P.

And I may include this Argument in one single Proposition thus.

If every Body that reflects her light from all parts, rugged and uneven, and that the Moon reflects her light from all parts, we must acknowledg that she is no polished Body, but rugged and uneven.

Or I may annex one Proposition to another, the causal particles, because, or since that, as thus,

If every true friend ought to be ready to lay down his life for his friend,

There are very few true friends, because,

Very few friends arrive at that degree of friendship.

This sort of arguing is very common and very neat; and this is that which shews us how vainly the imagination that there are no other arguments, but where they see three propositions separated and rang'd as in the Schools : For certain it is, that the Proposition alone contains this Syllogism entire.

Every true friend ought to lay down his life for his friend,

But there are few people who are ready to lay down their lives for their friends,

Therefore there are few true friends.

All the difference that there is, between absolute Syllogisms, and those where the Conclusion is included with one of the premises, in a conditional Proposition, is this, that the former cannot be entirely granted, unless that presently follow that was to be proved ; whereas Syllogisms of the second sort may be entirely granted, and yet the disputant shall gain no advantage all the while. For he is still to prove, that the condition be true, upon which depends the consequence allow'd him.

So that these Arguments are indeed no more than preparations to an absolute Conclusion; but they are very proper for that purpose; and we must confess that these ways of arguing are very ordinary and natural; and that they have this advantage, that being more remote from the air of the Schools, they are therefore the more graceful to other men.

Besides we may conclude from Syllogisms of this nature in all sorts of Figures and Modes, and so they need no other Rules besides the Rules of the several Figures.

Only we are to observe that the conditional conclusion containing one of the premises besides the conclusion, is sometimes the *Major* and sometimes the *Minor*.

Which we shall find by the Examples of most conditional conclusions drawn from two general maxims, the one Affirmative, the other Negative; whether the Affirmative be already prov'd or granted.

All sense of pain is a Thought.

From whence it is concluded Affirmatively,

1. *Therefore if all Beasts are sensible of pain,
All Beasts think.* Barbara
2. *Therefore if some Plants are sensible of pain,
Some Plants think.* Darii
3. *Therefore if all thought be an action of the mind,
All sensibility of pain is an action of the mind,*
Barbara
4. *Therefore if all sense of pain be an evil,
Some thoughts are evils.* Darapti.

5. *There-*

5. Therefore if the sense of pain be in the hand which

is hurt

There is some thought in the hand which is hurt

(Disjunctive)

Negatively.

6. Therefore if no thought be in the body,
No sense of pain is in the body. Celarent

7. Therefore if no beast thinks,
No beast feels pain. Camestres

8. Therefore, if some part of man does not think
Some part of man does not feel pain. Baroco

9. Therefore if no motion of matter be a thought
No sense of pain is motion of matter. Cesare

10. Therefore if no sentiment of pain be delightful.
Some thoughts are not delightful. Felapton

11. Therefore if some sentiment of pain be not voluntary
Some thoughts are not voluntary. Bocardo (tertius)

Some other conditional conclusions might be drawn from this general Maxim. *All Sensibility of pain is a thought*; but not being very natural, we omit 'em. Of those Propositions which we have produced; there are some that contain the Minor besides the Conclusion, viz. the 1. 2. 7. and 8. and others the Major besides the conclusion, viz. the 3, 4, 5, 6, 9, 10, and 12.

We may also observe several conditional Conclusions that may be drawn from a general Negative Proposition. For Example,

No matter thinks.

1. Therefore if every Soul of a Beast be matter,
N 311. of a Beast thinks. Celarent.

2. There-

Therefore if some part of a Man be matter, some part of a Man does not think. Ferio.

Therefore if our Soul think:

Our Soul is not Matter. Cesare.

Therefore if some part of a Man thinks:

Some part of a Man is not matter. Festino.

5. Therefore if all that is sensible of Pain thinks:

No matter is sensible of Pain. Camestres.

6. Therefore if all matter be a Substance:

Some Substance does not think. Felapton.

7. Therefore if some matter be the cause of several effects that appear miraculous, whatever is the cause of miraculous effects does not think. Ferison.

Of these Conditionals there are but five which include the Major besides the Conclusion; all the rest include the Minor.

The chiefest use of these Arguments, is to oblige him with whom we dispute to acknowledge the truth of a Consequence, which he may grant without giving his consent farther, because it is only propounded conditionally, and separated from the material Truth, as I may so say, of what it contains. And by this means the Opponent is disposed the more easily to admit the absolute conclusion drawn from thence, either granting the Antecedent to gain the Consequent, or barring the Consequent to take away the Antecedent.

Thus if any one grant me, that no matter thinks, I will conclude, that if the Soul of a Beast thinks, it must be distinct from matter.

And

And as he cannot deny me this conditional conclusion, I may draw from thence either the one or the other of these two absolute consequences.

But the Soul of a Beast thinks,

Therefore it is distinct from matter.

Or contrary,

But the Soul of a Beast is not distinct from matter,

Therefore it does not think.

From what has been said it appears that there ought to be four Propositions, to the end, that sorts of Arguments may be perfect, and prove something absolutely. And yet they are not to be placed in the number of Syllogisms, which are called compos'd, because these four Propositions contain nothing more in Sense, than the three Propositions of a common Syllogism.

No matter thinks,

Every Soul of a Beast is matter,

Therefore no Soul of a Beast thinks.

CHAP. XIV.

Of Enthymeme, and Enthymematick Sentences.

WE have already said, that an Enthymeme is a Syllogism perfect in the mind, but imperfect in the expression; because some one of the Propositions is suppress'd, as being too clear and common; and easily supplied by the understanding of those with whom we discourse.

This

This manner of argument is common in discourse and writing, that it is a rare thing to find all the Propositions exprest, as being so evident that they may be easily suppos'd; besides that it is the pride of human wit to chuse rather to have something left that may be supplied, rather than to be thought to want Instruction in every thing.

So that this supposition flatters the vanity of those with whom we discourse, while we remit something to their own Understanding, and by abridging our discourses, render it more smart and efficacious. For example, if from this verse of *Medea* in *Cvid*, which contains a most elegant Enthimeme.

Servare potui, perdere an possim rogas?

Any one should make an argument in Form, after this manner.

He that can preserve thee, can destroy thee,

But I can preserve thee,

Therefore I can destroy thee.

He had certainly dispoil'd it of all its Elegancy, and the reason of it is, because as it is one of the principal Beauties of discourse to be full of Sense, and to give an occasion to the Understanding to form a Thought more extensive than the Expression, so it is on the contrary, one of the greatest deficiencies to be void of Sense, and to spend multiplicity of words upon a few thoughts; which is almost inevitable in Philosophicā Syllogisms. For the Motions of the Mind being more swift than those of the Tongue, and one of the Propositions sufficing for the understanding of two; the expression
of

of the second becomes unprofitable, not containing any new Sense. And this is that which renders these sorts of arguments so rare in conversation of men ; because without making any Reflexions, we presently quit that which is tedious and troublesome, and betake our selves to what is precisely necessary to be understood.

Enthymemes then are the usual way of reasoning most common among Men, suppressing a proposition which they judge may be easily supplied ; and this proposition is sometimes the major, sometimes the minor, and sometimes the conclusion : altho' then it be not properly called an Enthymeme, when the whole force of the argument is included in the two first Propositions.

It also happens sometimes, that the two Propositions of the Enthymeme are included in one proposition, which for that reason Aristotle calls an *Enthymematick Sentence*, of which he gives this Example.

Ἀθάνατον ὀργὴν μὴ εὐλατῆς Θνητὸς εἶν'

Immortal anger bear not, being Mortal : which whole Argument would run thus : He that is Mortal ought not to bear Immortal hatred ; but you are Mortal, Therefore bear not Immortal hatred.

CHAP. XV.

Syllogisms compos'd of more than three Propositions.

WE have already intimated, that Arguments compos'd of more than three Propositions are called *Sorites*.

They may be distinguished into three sorts: 1. Into *Gradations*, of which we need say no more than what has been already said, in the first Chapter, third Part.

2. Into *Dilemmas* of which we shall treat in the following Chapter.

3. Into those which the *Greeks* call *Epichermas*, which comprehend the Proofs either of one of the two first Propositions, or of both together. And of these we shall discourse in this Chapter.

Now in regard we are bound to suppress in discourse certain Propositions, which are so clear that nothing can be clearer; it is also sometimes requisite to advance uncertain and doubtful ones, and to join proofs to 'em at the same time, to prevent the Impatience of those we dispute with, who are offended sometimes when we go about to persuade 'em by reasons which to them appear false and doubtful; for though the quarrel be easily afterwards reconciled, yet is it dangerous to provoke the Minds of the Auditors, though it be for never so little a while. And so it is much better that proofs should immediately

ately follow doubtful questions, than that they should be separated from them. Which separation produces also another Inconvenience, that we are bound to repeat the proposition which we endeavour to prove. And therefore whereas it is the method of the Schools to propound the Argument entire, and afterwards to prove the Proposition which receives the difficulty, that which is usual in ordinary discourse, is to join to doubtful Propositions the Proofs that confirm 'em ; which makes a sort of Argument compos'd of several Propositions. For to the Major are the proofs of the Major joined, to the Minor those of the Minor, and then comes the Conclusion.

Thus the whole Oration for *Milo* may be reduced into a compound Argument, of which the Major is, that it is lawful to kill him that lies in wait for my Life. The proofs of this Argument are drawn from the Law of Nature, the Law of Nations and Examples. The Minor is that *Clodius* laid wait for *Milo's* Life. And the proofs of the Minor are the Equipage of *Clodius* his Train, &c. The Conclusion is, that it was therefore lawful for *Milo* to kill him.

The proof of Original Sin is deduced from the miseries which Infants endure, according to the Dialectical method in this manner.

Children could not be born miserable, but by the punishment of some Sin which they deriv'd from their Infancy. But they are miserable, therefore it is by reason of original Sin. Now the Major and the

The Minor are to be proved in their turns. The Major by this disjunctive argument, the miseries of Infants cannot proceed but from one of these four causes, first from Sins that preceded this Life. 2. Or from the Inability of God who had not power to protect 'em. 3. Or from the Injustice of God, who suffers them to be miserable without a cause. 4. Or from original Sin. Now it is Impious to affirm from the three first Causes, and therefore they must be derived from the fourth, which is Original Sin.

The Minor that Infants are miserable, is to be proved by the Catalogue of their miseries.

But it is easie to see with what Elegancy and Efficacy *St. Austin* has propounded the proof of Original Sin, which he has enclosed in an Argument composed after this Form.

“Consider the number and the greatness of the miseries, with which Children are overwhelmed, and how the first years of their Lives are full of vanity, sufferings, delusions and fears. Afterwards as they grow up and begin to be of years to serve God, Error assails them to seduce their Minds. Labour and Pain attempts 'em to weaken their Bodies. Concupiscence tempts 'em to enflame their desires, sadness tempts 'em to despair, Pride tempts 'em to Ambition; and indeed who in few words is able to express the manifold words and pains that render ponderous the Yoke of the Children of *Adam*. The Evidence of these miseries has forced the *Pagan* Philosophers, who neither knew nor thought any thing of the Sin of

" our first Parent, to say that we were only born to
 " suffer the punishment of some crimes which they
 " had committed in another Life, and in like manner
 " that our Souls were conjoined to corruptible Bodies
 " according to that sort of punishment, which the
 " Tyrants of *Tuscany* caused those to suffer whom
 " they ty'd alive to dead Bodies ; but that opinion
 " that the Soul is join'd to the Body for the punish-
 " ment of crimes preceding in another Life is reje-
 " cted by the Apostle. What remains then but that
 " either the Injustice or the Inability of God, or the
 " punishment of original Sin, must be the cause
 " of so many dismal miseries ? But because God is
 " neither Just nor Impotent, there only remains
 " that which you are unwilling to acknowledg
 " but you must acknowledg it whether you will or
 " no ; that this same heavy yoke which the Sons of
 " *Adam* are obliged to bear, from the time that they
 " are deliver'd out of their Mothers Womb, till the
 " day that they enter into the womb of their com-
 " mon Mother, the Earth, could never have been
 " had they not deserved it for the Sin which they
 " derive from their Original.

CHAP. XVI.

WE may define a *Dilemma*, a compos'd Ar-
 gument, where after the division of the
 whole into parts, we conclude negatively or affir-
 matively, of the whole that which is concluded of
 every part.

I say, that which is concluded of every part, and not that which is only affirm'd. For that is only properly called a *Dilemma*, when that which is said of every part is sustain'd by its particular Reasons.

For example being to prove, that a Man cannot be happy in this world, it may be done by this *Dilemma*. We cannot live in this World; but we must either abandon our selves to our Passions, or war against 'em. Now we cannot be happy in this World, if we abandon our selves to 'em, we are miserable; for it renders us Ignominious, nor are we ever satisfied.

If we war against 'em, we are miserable; in regard there is nothing more painful and irksome than that intestine war which a Man is always obliged to make against himself.

Therefore he cannot have any true Happiness in this Life.

If we would prove, that such Bishops who do not labour for the Salvation of Souls committed to their Charge, are inexcusable before God, it may be done by this *Dilemma*.

Either they are capable of that charge, or they are incapable;

If they are capable, they are inexcusable for not employing their parts in the execution of their charge.

If they are incapable, they are inexcusable for undertaking so important a charge which they are not able to undergo.

And by consequence, which way soever you take it, they are inexcusable before God, if they do not attend with diligence the salvation of the Souls that are committed to their charge.

But there are some observations to be made upon these sorts of Arguments.

The First is, that all the Propositions are not always expressed : For example, the *Dilemma* which we have propos'd was comprehended in a few words in the Oration of the Lord Charles at the entrance of a certain person into the Provincial Councils. *If you are incapable of so great a charge, why so ambitious ? If fit for it, why so negligent ?*

Thus there are many things subintellected in that memorable *Dilemma* by which an ancient Philosopher prov'd. That no man ought to busie himself in public Affairs.

If any person act well, he will offend men ; if he act ill, he will offend the Gods : therefore he ought not to meddle with the public.

In the same manner another prov'd, that it was not expedient to marry.

If the woman that marrys be lovely, she will cause jealousies, if she be deformed, she will never delight him : therefore it is not expedient to marry.

For in both these *Dilemmas*, the Proposition which ought to cause the Partition is subintellected. And this is that which is very usual ; because it may be easily supply'd as being marked out by the particular Propositions that argue each part.

More

Moreover to the end the Conclusion may be included in the premises, something general is every where to be supplied, which may agree with the whole: as in the former example.

*If he act well, he will offend men, which is ill endur'd.
If he act ill, he will offend God; which is equally pernicious.*

Therefore it is a thing every way troublesome to meddle in State Affairs.

This advice is very important, to the end a man may make a true judgment of the force of a *Dilemma*. For the reason why this is not concluding, is, because it is not a thing so troublesome to offend men, when it cannot be avoided without offending God.

The second Observation is, that a *Dilemma* may be vicious chiefly through two defects. The one is when the disjunctive upon which it is grounded, is erroneous, not comprehending all the members of the whole that is divided.

Thus the *Dilemma* against Marriage concludes nothing. For a Wife may be chosen, neither too fair to create a jealousy, nor deformed to breed a loathing.

For this reason that was a most erroneous *Dilemma* which the ancient Philosophers made use of; to perswade men not to fear death.

Our Soul, said they, perishes with the Body, and so being void of any more Sence, we shall not be obnoxious to any farther misery: Or if the Soul survives the Body, it will be more happy, than it was in the Body, therefore death is not to be feared.

For as *Montaign* has well observed, it was a great blindness not to see a third condition between these two. Which is, that the Soul surviving the Body may be in a state of misery and torment : Which may be a just reason for a man to fear death, for fear of falling into that condition.

Another Error that hinders *Dilemma's* from being conclusive is, when the particular conclusions of every part are not necessary. So it is not of necessity, that a beautiful woman should create Jealousie. For she may prove so wise and so vertuous, that her Husband may have no cause to mistrust her fidelity.

Nor is it of necessity, that being deformed, she should dislike her Husband ; because she may have those other advantageous qualities and virtues, wherein a man may take the greatest delight.

The third Observation is, That he who makes use of a *Dilemma* ought to take care, that his argument be not turned upon himself. Thus *Aristotle* testifies that he turned upon the Philosopher, who went about to prove that men were not to meddle with State Affairs, his own argument. For says he,

*If a man govern according to the corrupt laws of men,
he shall content men.*

If he observe true justice he will content the Gods,

Therefore he ought to interest himself in public Affairs.

Nevertheless this Turn is not rational ; for we ought not to offend God that we may please men.

CHAP. XVII.

Of the places, or method to find out Arguments; and how this method is of little use?

PLACES of Arguments, so call'd by the Rhetoricians and Logicians are certain General Heads, under which may be brought all the proofs which are made use of in the various matters of discourse: and that part of Logic which they call *Invention*, is nothing else, but what they teach concerning these places.

Ramus quarrels with *Aristotle* and the School-men, because they discourse of places after they have given the rules of arguments; and he affirms against 'em, that they should first explain what concerns Places and Invention before they lay down the rules of argument. *Ramus's* reason is, because Matter is first to be found out, before we think of disposing it.

But this reason is very weak: For though it be very requisite, that Matter should be found out for disposition, yet is it not necessary to teach how to find out Matter, before we know how to dispose it. For to teach the disposition of Matter, it suffices to have certain general Matters to serve for examples. Besides, that the Understanding and common Sense affords matter sufficient without going a begging to Art or the Method of Invention. So that it is true, that we ought to have Matter ready to apply

to the rules of arguments ; but that there is any necessity to find out this matter by the method of places, is a meer falsity.

We may rather urge the quite contrary, that it is necessary to know what an argument or Syllogism is, before we learn from the doctrine of places to draw out Arguments and Syllogisms. But it may be they will answer, that nature alone furnishes us with a general knowledge of Ratiocination ; which is sufficient to understand what is said in the discourse of places.

Therefore they mispend their time, who anxiously trouble themselves, in what place, *Places* are to be handled, since it is such an indifferent Thing. But perhaps it would be more profitable, whether it be to any purpose to discourse of 'em at all.

We know the Ancients held this method for a Sacred mystery ; and that *Cicero* prefers it also before all other parts of Logic, as it was taught by the Stoicks, who took no notice of places. Let us forego, saith he, that art which is mute in the finding out of argument, loquacious in judging of 'em, *Quintilian* and all the other *Rhetoricians*, *Aristotle* and all the Philosophers sing the same song, so that they would almost prevail with us to agree with them, were they not oppos'd by universal experience.

We might produce almost as many Witnesses as there are persons who have run through the usual courses of study, and have learnt from this artificial method to find out proofs, as they are taught in Colledges.

Colledges. For is there one that can truly affirm, that when he was oblig'd to any subject, that he ever made any Reflexions upon these places, or sought those reasons which he wanted from thence? Let 'em consult all the famous Pleaders and Preachers which are in the World; and all those numbers of Writers and Disputers, who never are pumpt so dry, but that they could still say more; I question whether there will one be found that ever so much as dreamt of *Places from the Cause, Places from the Effect, Places from the Adjunct* to prove what they desired to perswade.

Quintilian also notwithstanding the great esteem which he shows for this Art, is obliged nevertheless to acknowledge that there is no necessity, when a man handles any subject to go and knock at the door of all these *Places* for Proofs and Arguments. Let the studious of Eloquence mind this also, that, when matter of Argument is propos'd, there is no necessity to search all the several places, and as it were to go from door to door to know whether they will answer to what we intend to prove.

True it is, that all Arguments may be brought under these general Heads and Terms which are called *Places*; but their Invention is not to be ascribed to this method. Nature, consideration of the Subject, and the fore-knowledg of various truths lead us to those probations; and at length Art reduces 'em to certain *Genus's*. So that we may truly say of these *Places* what *St. Austin* pronounced in general concerning Rhetoric. We find, faith.

he, that the Rules of Eloquence are observed in the Discourses of Eloquent persons, though whether they know 'em, or know 'em not, they never think 'em. They practise these Rules, because they are Eloquent, but they do not make use of 'em to attain Eloquence.

We naturally walk as the same Father observes, and in walking, we move regularly with our Bodies. But it would be ridiculous for a *Master of walking* to pretend to tell us, that the Animal Spirits were to be sent into certain Nerves; that such Muscles were to be moved; or to teach us, to move such joints, and to set one Leg before another. 'Tis true, Rules might be given for all these things; but that these actions should ever be performed by the help of any rules were ridiculous. So in common discourse all these *Places* are made use of; nor can any thing be said but what may be referred to 'em. But it is not an express Reflexion upon those *Places* that produces our thoughts; such a reflexion serving rather to stop the Career of Wit, and preventing it from finding out more natural and effectual Reasons, which are the Ornaments of Discourse.

Virgil in his Ninth Book of *Aeneids*, after he has represented *Euryalus* surprized and environed by his Enemies, who were ready to revenge upon him the death of their Friends, whom *Nisus*, the Friend of *Euryalus* had slain, puts these words full of passion and affection into the mouth of *Nisus*.

*Me me, adsum qui feci, in me convertite ferrum
O Rutuli, mea fraus omnis ; nihil ista nec ausus,
Nec potuit. Cælum hoc & sidera Conscia testor
Tantum Infelicem nimium dilexit Amicum.*

Says *Ramus*, this is an Argument from the efficient cause. But we may safely swear, that *Virgil* never dreamt of the Place from the Efficient Cause, when he made those Verses. Nor had he ever made 'em, if he had stopt in search of such a thought in the Efficient Cause. Nay it may be rather thought that he not only forgot his Rules and his Places, if ever he had any such knowledg, but was transported beyond himself, when he represented such a Person and such Passions.

And in truth, the little use that has been made of this method of Places from the long while ago, that it was first invented, is an evident sign how little it is to be regarded. For all they can pretend to by this method, is, only to find out several general, common, remote Notions upon every subject, such as the *Lullists* find by the means of their Tables. Now such a copiousness is so far from being advantageous, that there is nothing more hurtful to the Judgment.

Nothing hinders so much the growth of good Seeds as when they are over-grown with Weeds. Nothing renders a Wit more barren in true and solid thoughts than this evil fertility of low and common Notions.

The Wit accustoming it self to that facility ; never forcing it self to find out proper, particular and natural Reasons, which never discover themselves but in attentive Consideration of the Subject.

Besides we are to consider this copiousness in Place to be of no advantage ; as being seldom wanting to the most part of the World. For men often become blameable for loquacity, seldom for want of saying too little. So that their Writings are more times too full of matter. And therefore to form solid and judicious Eloquence it would be much more to the purpose to teach men to hold their tongues than to talk, and how to retrench low, common and false Notions, than how to produce as they do, a confus'd *oglia* of good and bad Arguments, with which they fill their Discourses.

Seeing then the use of *these Places* is serviceable to no other end than to find out these sorts of trashy Notions, we may say, that if it be any way necessary to know what has been said of 'em (for they have been the discourse of so many eminent Men, that it would be almost a crime to be altogether ignorant of 'em) 'tis only to be convinced how ridiculous it would be to make use of 'em in all things, even in those which are most remote from our Sight, as the *Lullists* do by means of the general Attributes, which are a sort of *Places* ; and from thence to boast a preposterous facility to discourse of all things, and to give reasons for all things, is so bad a Character of Wit, that it is below the irrationality of Beasts.

So that all the advantage that can be drawn from these

These *Places* is no more than to get a slight and general Tincture, to the end that without much thinking, we may view the several Parts and Faces of the matter of which we discourse.

CHAP. XVIII.

The Division of Places into Places of Grammar, Logic and Metaphysics.

THEY who have treated of *Places*, have divided them several ways. That division which *Cicero* followed in his Books of Invention, and second, *de Oratore*, and *Quintilian* in his fifth Book of Institutions, is less Methodical, but more proper for Pleading at the Bar, for which it is purposely designed. And *Ramus* is too much perplexed with Subdivisions.

There is therefore another of a certain German Philosopher that seems more accurate ; this is *Clau-bergius*, a person both solid and judicious, whose Logic came to my hands, when I had begun to Print this.

These places are drawn either from Grammar, from Logic or Metaphysics.

Places from Grammar.

The places from Grammar, are *Etymologie*, and words derived from the same Root, which in *Latin* are called *Conjugates*, in Greek *Paronyma*.

Arguments are drawn from *Etymologie*, as when for Example, we say that few Men, to speak properly, divertise themselves. For to divertise a Mans self, is, to call his Mind from serious things when indeed very few apply themselves to serious Studies.

Conjugates also afford Arguments, as thus.

I am a Man, I think nothing humane strange,

Being Mortals, we are prest by a mortal Enemy,

Who more deserving comfort than the Comfortless

Who less deserving Charity than a proud Beggar.

Places from Logic.

Places from Logic are universal Terms, Genus, Species, Difference, Propriety, Accident, Definition and Division; which having already been explained before, we need say no more of 'em here.

Only we must observe that to these common places are joined certain common Maxims, which it is good to know, not because they are useful, but because they are common. We have already produced some under other Terms; but it will not be amiss to know 'em under their usual and proper Terms.

1. That which is affirmed or denied of the Genus, is affirmed or denied of the Species, whatever be-
falls

For all Men, happens also to the most Potent. For they cannot pretend to advantages above Humanity.

2. *By destroying the Genus, the Species is destroyed. He that never judges at all, never judges amiss. He that never speaks at all, never speaks Indiscreetly.*

3. *In destroying all the Species, the Genus is destroyed. Terms called Substantial, except the rational Soul, are neither Body nor Spirit; therefore no Substances.*

4. *If the total difference may be denied or affirmed of any thing, the Species may be denied or affirmed. Extent is no way agreeable to thought, therefore it is not Matter.*

5. *If the property of any thing may be denied or affirmed, the Species may be also denied or affirmed. It being impossible to imagine the half of a Thought, nor a round or a square Thought, it is impossible it should be a Body.*

The thing defined is denied or affirmed, of which the definition is affirmed or denied. There are few persons just, because there are few persons willing to give to every one their due.

Places of Metaphysics.

Places of Metaphysics, are general Terms agreeing with all Beings, to which many Arguments are referred, as Arguments from the Cause, Effect, Whole, Parts, Opposites. Wherein that which is most useful is to know some general Divisions, and chiefly of Causes.

The School-definitions of Causes in General, that a Cause is that which produces an Effect ; or that whereby a thing is, are so slovenly, and it is so difficult to discern how they agree with all the Generals of cause, that they would have done better never to have separated this word from such as cannot be defined ; the Idea which we have of it, being as clear as the definitions which they give.

But the division of causes into four Species which are the cause Final, Efficient, Material and Formal is so celebrated, that it behoves us to take a little notice of it.

The final cause is called the end for which a thing is.

There are primitive ends which are primarily considered, and *Secondarie* ends, which are considered *Secondarily*.

What we act to do or obtain a thing, is called the end for whose sake. Thus Health is the end of Physick, because it pretends to procure it.

The end for which we labour is called the *Finis cui*. Thus Man is in this Sence the end of Physic, for whose sake she pretends to make Medicines.

There is nothing more usual than to draw Arguments from the *End*, either to shew that a thing is Imperfect, as an ill-contrived Discourse, when it is not adapted to perswade, or to shew 'tis probable that a Man has done, or will do, some action, because that it is conformable to the end, which he has accustomed to propose to himself. Whence that famous saying of a Roman Judge, *Cui Bono*, which ought

ought always to be our first examination, that what profit a Man aims at in doing such a thing; for generally profit and Interest governs the actions of Men. Or else to shew that we ought not to suspect a Man for doing such an action, as being contrary to his Interest.

There are also several other Arguments drawn from the end, which a ripe Understanding will soon discover than all the direction of Rules.

The Cause Efficient is that which produces another thing, from whence several Arguments are drawn to shew that the Effect is not, in regard the Cause is not sufficient; or to shew the effect is or will be in regard the Causes are apparent. If the causes are not necessary, the Arguments are not necessary. If they are free and contingent, the Argument is only probable.

There are several sorts of Efficient Causes, whose names it is useful to know.

God creating *Adam* was the total Cause, in regard that nothing could concur without him. But the Father and Mother are only the partial causes of the Infants, in regard they want another.

The Sun is the *Proper* cause of Light; but he is only the accidental cause of the Death of a Man, whom excess of heat kills, in regard he was not of strong Constitution before.

The Father is the *next* Cause of the Son.

The Grand-father the *remote* Cause.

The Mother the *Productive* Cause.

The Nurse the *Preserving* Cause.

The

The Father is the *Univocal* cause of Children because they are of the same nature with him.

God is only the *Equivocal* cause in respect of the Creatures, because they are not of the nature of God.

An Artist is the *Principal* Cause of his Workmanship, his Tools are the *Instrumental* Cause.

The Wind that fills the Organ pipes is the *Universal* cause of the Harmony.

The Sun is a *Natural* Cause.

Man is an *Intellectual* Cause in respect of what he acts with Judgment.

The Fire that burns the Wood is the *Necessary* Cause.

The Sun enlightning a Chamber is the proper cause of the Light; the Window is only the cause or *Condition* without which the effect could not be otherwise *Sine qua non*.

Fire burning a House, is the *Physical* cause of the Flame.

The Man that set it on Fire the *Moral* Cause.

To the efficient cause is also added the *Exemplary* cause; which is the *Model* proposed in making the Work. As the design of a building, by which the Architect governs himself, or generally that which is the *Objective* cause of our *Ideas*, or of any other Representation whatever. As *Lewis* the Fourteenth is the *Exemplary* cause of his Picture.

The material Cause is, that out of which all things are made. That which agrees or does not agree with the matter, agrees or disagrees with those

of things which are composed out of it.

The formal cause is, that which makes the thing what it is, and distinguishes it from others. Whether it be a Being really distinguished from the latter, according to the opinion of the Schools; or only a disposition of the Parts. By the knowledge of this Form, Propriety is to be explained.

There are as many different Effects as causes, the effects being Reciprocal. The usual manner of drawing Arguments from hence is to shew, that if the effect be, the cause is, since nothing cannot be without a cause. It proves also that a cause is good or bad, when the Effects are good or bad. Which is not always true however in causes by accident.

We have spoken sufficiently of the whole and parts in the Chapter of Division; and therefore it will be needless to add any thing more here.

There are Four sorts of Opposite Terms.

Relatives, as Father and Son, Master and Servants.

Contraries, *Cold, Hot, Sound and Sick.*

Privatives, as Life, Death, Sight, Blindness, Hearing, Deafness, Knowledge, Ignorance.

Contradictories which consist in one Term, and the simple Negation of the Term, to see, and not to see. The difference which there is between these two latter sorts of Opposites, that the Privative Terms include the Negation of a Form in a subject which is capable of it, whereas the Negatives do not denote that Capacity. Therefore we do not say

say a Stone is blind, or dead, as not being capable either of life or seeing.

Now in regard these Terms are opposite, they make use of the one to deny the other. The contradictory Terms have this Property, that by taking away the one, the other is confined.

Comparisons are of many kinds. For they compare things whether equal or unequal, like or unlike. They prove that what agrees or disagrees with one thing equal or unequal, like or unlike, agrees or disagrees with another thing to which it is either like or unlike, equal or unequal.

Of things unequal it is prov'd Negatively, that if what is most probable is not; that which is least probable is not *a fortiori*. Affirmatively, if that which is least probable, be, that which is most probable is also. These differences or dissimilitudes are made use of, to ruin those things, which others would have established upon similitudes; thus we ruin an Argument drawn from the sentence of a Judge by affirming it was pronounced in a different Case.

This is the chiefest part of what is blockishly delivered concerning Places. There are other things which are more profitable to be known, than what is here explained. They who desire more may consult the Authors themselves who have more accurately handled these things. But I would not advise any one to consult the Topics of *Aristotle*, as being Books very confus'd. But there is something which is not a little to be commended in the first Book of his *Rhetoric*, where he teaches several

several ways to shew that a thing is profitable, lessing, greater or less. Though it be certain that a man shall never by this way arrive at any certain knowledg.

CHAP. XIX.

Of the several sorts of vicious Arguments which are call'd Sophisms.

Although that when we understand the Rules of right Arguing, it be no difficult thing to distinguish those that are false; nevertheless as examples to be avoided make a deeper impression on our minds, than examples that are worthy imitation, it may not be amiss to lay open the source of bad Arguments, which are called *Sophisms*, *Paralogisms*, whereby they may the more easily be avoided. I shall reduce 'em only to seven or eight Heads, there being some so notoriously stupid, that they are not worthy remembrance.

SOPHISM is that which is used to prove another thing than that which is in question.

This Sophism is call'd by Aristotle, *Ignoratio Elenchi*. The ignorance of that which is to be prov'd against the Opponent. For in dispute we grow hot,

hot, when many times we do not understand another. This is a common vice in the disputes among men. Through passion, or falshood we tribute that to the Opponent, which is remote from his thoughts, to combat him with more advantage; or we tax him with consequences which we think we can draw from his Doctrine, which he disavows and denies. All this may be referr'd to the first sort of Sophism, which a man of worth and sincerity ought to avoid above all things.

It were to be wish'd that *Aristotle*, who is too careful to admonish us of this defect, had been also careful to avoid it. For it cannot be denied, but that he has encounter'd several of the ancient Philosophers by citing their Opinions, not with that sincerity which he ought to have done. He reproveth *Parmenides* and *Melissus*, for not admitting but one sole Principle of all things, as if they had meant that, the Principle of which they are composed; whereas they meant the sole and only Principle from whence all things draw their Original, God himself.

He accuses all the Ancients for not acknowledging Privation, one of the Principles of natural things; and for that, he inveighs against 'em as dull and rustic. But who so blind as not to see that what he represents to us as a grand mystery, not known till he discover'd it, could never be conceal'd from any man: since it is impossible for a man not to apprehend, that the matter of which the Table is made, must have the Privation of the form

of a Table, that is, can be no Table before it is shaped into a Table. 'Tis true, the Ancients never thought of this use of Privation to explain the Principles of things natural, because indeed there is nothing less serviceable to that purpose. It being visible, that we do not therefore the better know how a Clock is made, because we know that the matter of which a Clock was made, was not a Clock before.

Therefore it is a great piece of Injustice in *Aristotle* to reproach these ancient Philosophers for having been ignorant of a thing, which it was impossible for 'em to be ignorant of ; and to accuse 'em for not making use of a principle for the Explanation of Nature that explains nothing at all : Nay he is guilty of Delusion and Sophism while he obtrudes upon us the principle of Privation for a rare secret, when this was not that which they sought, when they enquir'd into the Principles of Nature. For it is certain, that nothing can be, before it is. But we are desirous to know of what Principles it consists and what is the Cause that produced it.

Thus, for example, there was never any Statuary, who to teach another the way to make a Statue, gave his Scholar that Lesson for his first Instruction wherewith *Aristotle* would have us begin the Explanation of the works of Nature. Friend, the first thing you are to know is this, that for the making of a Statue, you must chuse a piece of Marble, which is not yet that Statue which you design to make.

I I.

To suppose for truth the thing that is in question.

This is that which *Aristotle* calls *begging of the question*, which we manifestly see to be contrary to true reason. Since in all Arguments, that which serves for Proof, ought to be more clear and known than the thing which we would prove.

Nevertheless *Galileus* accuses *Aristotle*, and that justly too, to have fallen into this Error, when he would prove by this Argument, that the Earth is the Center of the world.

'Tis the Nature of heavy things to tend to the Center of the world, and of light things, to keep at a distance from it.

Now experience shews us, that Heavy things tend to the Center of the Earth, and light things keep at a distance from it.

Therefore the Center of the Earth is the Center of the world.

Most apparent it is that there is in this Argument a manifest *begging of the Principle*. For we find that heavy things tend to the Center of the Earth, but where did *Aristotle* learn that they tend to the Center of the world, unless he suppose the Center of the Earth and the Center of the world to be the same. Which is the Conclusion that he would prove by this Argument.

Meer *beggings* of the question also are those Arguments which are made use of to prove a whimsical

al Genus of Substances, called in the Schools *Substantial Forms*, which they would have to be *Correal*, though they are no Bodies, which is difficult for the Understanding to apprehend. If there were *Substantial Forms*, say they, there would be no *Generation*: But there is *Generation* in the World, therefore there are *Substantial Forms*.

Now to shew that this Argument, is a meer Begging of the question, there needs no more than to open the Equivocation that lyes in the word *Generation*. For if we must understand by the word *Generation*, a natural production of a *new whole* in Nature, as the Production of a Hen, which form'd in an Egg, in this sence we may truly follow of *Generation*; but we cannot thence conclude that there are new *Substantial Forms*, because the sole Disposition of the Parts by nature, may produce those *new Wholes*. But if they mean by the word *Generation*, as they usually do, the Production of a new substance which never was before, that is to say, of *Substantial Form*, we may justly doubt the thing that is in question, it being visible that those who denies *Substantial Forms* can never grant that nature produces *Substantial Forms*. And so far is this Argument from perswading a man to admit of *Substantial Forms*, that he may draw a quite contrary Conclusion in this manner.

If there were *Substantial Forms*, Nature might produce Substances that never were before.

But Nature cannot produce new Substances, because it would be a kind of Creation.

And therefore there are no Substantial Forms.

Of the same leven is this: If there were no Substantial Forms, say they, there would be no natural Beings at all, as they call *per se*, *Totum per se*, but Beings by accident. But there are *Tota* or *Wholes per se*; Therefore there are Substantial Forms.

First we are to desire those that make use of this Argument to explain themselves, what they mean by *Whole per se*, *totum per se*. For they mean, as they do, a Being compos'd of Matter and Form, then it is clearly a Begging of the question; for then it would be as if they should have said, if there were no Substantial Forms, natural Beings could not be compos'd of Matter and Form Substantial. But they are compos'd of Matter and Forms Substantial. Therefore there are Forms Substantial. If they mean any thing else let 'em tell us and we shall see whether it will avail to maintain their conclusion.

We have stopp'd here a little by the by, to shew the weakness of these Arguments, upon which the Schools have grounded these sorts of Substances which can neither be discover'd by the Sence, nor apprehended by the Understanding, and of which we know nothing more, but that they are called *Substantial Forms*.

Because that although their Supporters do it, out of a good design, nevertheless the Grounds which they make use of, and the *Ideas* which they give of Forms obscure, and trouble the solid and convincing Proofs of the Immortality of the Soul.

which are drawn from the distinction between Bodies and Spirits, and the Impossibility that a substance which is not matter should perish by the Changes that happen to matter. For by the means of these Substantial Forms, *Libertines* furnish themselves with examples of Substances that perish, which are not properly Matter, and to which they attribute in Animals an Infinity of thoughts, that is, of actions purely spiritual. And therefore it is for the benefit of Religion, and the Conviction of Infidels to overturn this Answer of theirs, to shew that there is nothing more stupid nor worse grounded, than these perishable Substances, which they call Substantial Forms.

To this may be referr'd that sort of Sophism which is drawn from a principle different from what is in the question, but which is known to be no less contested by the Opponent. These are two Maxims equally constant among the Catholics. The one that all points of faith can't be prov'd by Scripture alone: the other, that Children are capable of Baptism; Therefore an *Anabaptist* would argue ill, to prove against the Catholics, That they are in the wrong to believe that Children are capable of Baptism, because we find nothing to prove it in Scripture; because that would suppose that we ought to believe an Article of Faith but what is in the Scripture, which is denied by the Catholics.

Lastly, we may refer to this Sophism, all those Arguments, by which we endeavour to prove one thing unknown, by another altogether as much unknown,

known, or a thing uncertain by another thing altogether or more uncertain.

III.

To take for the Cause that which is not the Cause.

This Sophism is called *non Causa pro Causa*. This is very usual among men, and they fall into it several ways. The one through the bare Ignorance of the real Causes of things. Thus the Philosophers have attributed a Thousand Effects to the Fear of *Vacuum*, which at this day and by most ingenious Experiments is demonstratively proved to have no other Cause than the Ponderosity of the Air, as we may see in that excellent Treatise of Monsieur *Pascal*, lately Printed. The same Philosophers teach us, that Vessels full of Water, crack when the Water is frozen, because the Water closes it self, and leaves a void place which Nature cannot endure; whereas it is well known, that those Vessels break, because the Water when congeal'd takes up more space than when fluid; which is the reason that the Ice swims upon the Water.

To this may be referr'd that other Sophism, when we make use of remote causes, and such as prove nothing, to prove things either clear of themselves or false, or at least doubtful, as when *Aristotle* would prove that the World is perfect by this Reason,

The World is perfect because it contains Bodies: The Body is perfect because it contains three Dimensions;

The three Dimensions are perfect, because there are all; (*quia tria sunt Omnia*), and there are all, because we never use the Word all, when the thing is either one or two, but there are three.

By which reason a man might prove that the least Atom is as perfect as the World, because it has three Dimensions as well as the World. But this is so far from proving the World to be perfect, that the quite contrary is rather to be asserted, that every Body, *quatenus* a Body, is essentially imperfect; and that the perfection of the World consists chiefly in this, that it includes Creatures that are not Bodies.

The same Philosopher proves that there are three simple Motions, because there are three Dimensions. Though it be a very difficult thing to find a Conclusion from the Premises.

He also proves, that the Heaven is unalterable and incorruptible, because it moves Circularly. But first, it is not well discovered yet what Contrariety of Motion has to do with the Corruption or Alteration of Bodies. In the second place there is less Reason to be given, why a Circular Motion from East to West, should be contrary to a Circular Motion from West to East.

In the second place we fall into this sort of Sophistry through that silly Vanity that makes us ashamed to confess our Ignorance. From whence it happens, that we rather chuse to forge Imaginary causes of the things, for which we are ask'd the reason, than to confess that we know it not. And it is a pretty

kind of way whereby we avoid this Confession of our Ignorance. For when we see the effect of a cause unknown we imagin we have discovered it, when we have joyn'd to this effect a general word of *Virtue* or *Faculty* ; which Forms in our mind no other *Idea*, but only that the effect has some cause, which we knew before we found out that word. For example, there is no body but knows that the *Arteries* beat, that *Iron* cleaves to the *Adamant*, that *Sena* purges, and *Poppy* Stupifies. They who make no profession of knowledge, and who are not ashamed of Ignorance, freely confess that they know the Effects, but understand not the cause, whereas others that would blush to say so, and pretend to have discovered the real cause of effects presently cry, there is a pulsific virtue in the Arteries, a Magnetic virtue in the *Adamant*, a Purgative virtue in *Sena*, and a Soporific virtue in *Poppy*. Now is not this quaintly resolv'd ? and might not the *Chineses* with as much facility have extricated themselves from all their admiration of our Clocks, when first brought into their Country ? For they might have said they knew perfectly the reason of what others were so puzzl'd at, by affirming that it was only by an *Indicative* virtue that this Engin marked out the hour upon the *plane*, and by a *Sonorific* quality that the Bell strook. Certainly they might have passed for as learned Persons in the knowledge of Clocks, as our Philosophers in causes of the beating of the *Arteries*, &c.

There are also certain other words that serve to render

under men learned at a small expence, as *Sympathy*, *Antipathy* and *occult Qualities*. Yet they that use them would utter nothing of falshood, provided they annexed the general notion of the cause to the words *Vertue* and *Faculty*; Whether it is Internal or External, Dispositive or active. For certain it is, that there is a Disposition in the Magnet for whose sake the *Iron* moves to that rather than to any other stone.

And men have been allowed to call this Disposition whatever it be, *Magnetic Vertue*. So that if they are deceived 'tis only in this, that they imagin themselves to be more Learned than others for having found out the word; or else, because they would have signified by this word a certain imaginary quality, whereby the Magnet draws the Iron, which neither they, nor any other Person could ever apprehend in their understandings.

But there are others who obtrude upon us for real causes of nature pure *Chimera's*, as the Astrologers; who refer all causes to the Influences of the Stars. And these are they forsooth who have found out that there must of necessity be an Immoveable Heaven above all the rest of the Spheres which they allow motion; because the Earth producing divers things in different Climes,

Non omnis fert omnia tellus.

India mittit ebur; molles sua thura Sabæi:

There can be no causes of such variety of productions but the Influences of a Heaven, which being

immoveable has always the same Aspects upon the same parts of the Earth.

Thus one of these Doctors having undertaken to prove by Physical Reasons the Immobility of the Earth, makes it one of the principal Demonstrations of that Mysterious Reason, that if the Earth turn'd about the Sun, the Influences of the Stars would be carried obliquely which would cause a great disorder in the world.

With these Influences they strangely terrifie the People, so that when they see any Comet appear, or that any great Eclipse happens, then the world must be turn'd topsie-turvy, and wo to *Spain*, *Germany*, *Swedeland*, or some other Country which they have most a peck at ; tho there be no reason that either Comets or Eclipses should have any considerable effect upon the Earth, or that general causes, as they are, should operate more effectually in one part more than in another, or threaten a King or a Prince more than a Mechanic besides that we find a hundred Comets that were never infamous for any of those Dire Effects laid to their charge.

For what if Mortality, Pestilences, Wars, Deaths of Princes do sometimes happen after the Appearance of Comets and sight of Eclipses, they as often happen without any such signals. Besides these effects are so general and common, that it is much if they do not happen in some part of the World every year. So that they who talk at Random, that such a Comet threatens the death of some great Personage, do not hazard their Reputation over much.

But

But it is far worse when they give these Chimerical Influences for the cause of the vertuous or vicious Inclinations of men, as also of the particular actions and events of their Life, without having any other ground, than only that among ten thousand Predictions it falls out by hap-hazard that some one proves true. Altho if a man were to judge of these things rationally and according to good sense, he might as well say that a Candle lighted in the Chamber of a Woman that lyes in, ought to have a greater Influence upon the Body of the Infant, than the Planet *Saturn* in whatsoever *Aspect* or *Conjunction* it be. Lastly there are some, who assign Chimerical causes of Chimerical effects; and such are those who supposing that nature abhors a Vacuity, and that she does her utmost to avoid it, feign more Fictitious causes of this Fictitious horror; the effect it self being imaginary, seeing that nature fears nothing, and that all the effects which are attributed to this dread of nature, depend upon the sole Gravity of the Air. Nature abhors a *Vacuum*, says one of these profound Philosophers, because she has need of *Continuity* of Bodies to Transmit her Influences, and for the Propagation of Qualities. A most wonderful Science indeed which goes about to prove that which is not, by that which is not.

Therefore when we search the causes of extraordinary effects, we ought carefully first to examine whether the effects be true. For sometimes we labour to no purpose to search out the reason of things

that are not. Inſomuch that there are an Infinite number of queſtions which are to be reſolved; *Plutarch* reſolves this propounded by himſelf, *Whether ſuch Colts as are purſued by the Wolf are ſwifter than others.* For after he has ſaid, that perhaps the Wolf might have aſſailed the more ſlow of Foot firſt, and ſo they that eſcaped were the ſwifteſt, or elſe that fear having added wings to their feet had imparted to 'em that habitude of ſwiftness which afterwards they retained, he at laſt brings another ſolution which ſeems to be very true and genuine; *Perhaps,* ſays he, *the thing it ſelf may be a ſtory.* And this is the method we ought to obſerve in Philoſophizing concerning ſundry effects which are attributed to the *Moon*, ſuch as theſe, that the Bones are full of Marrow upon the Increate of the *Moon*; but empty when ſhe is in her wain; And whereas alſo the ſame is ſaid of Crevices or Cray-fiſh; there is no other answer to be made but that the whole is a Fable, as ſeveral Perſons very diligent and exact have aſſured me, that as well the Bones and Cray-fiſh are ſometimes empty, ſometimes full in all the Quarters of the *Moon*. Many obſervations of this nature there are in reference to the cutting of Wood, ſowing and gathering of Fruit, Graſting, and the very moment when fit to take Phyſic. But the world will be delivered at length from theſe little Bondages which have no other ground than meer ſuppoſitions that were never ſeriously examined. And therefore they are unjuſt who require us, without any Examination to believe their ſigments, meerly upon

on one single Experiment, or an Allegation out of some ancient Author.

To this sort of Sophistry ought also to be referred that usual fallacy of Human wit, *Post hoc, Ergo propter hoc*. After this, *therefore for this*. Hence it is that the Dog-Star is concluded to be the cause of the violent heat at that time of the year which is called the Dog-days, which caus'd *Virgil*, speaking of that Star to pronounce these Verses.

Aut sirias ardor,

Ille fitim morbosque ferens mortalibus aegris.

Nascitur, & laevo contristat lumine caelum.

Whereas Monsieur *Gassendus* has well observed, that there is nothing less probable than this vain Imagination. For this same Star being beyond the Line, the Influences ought to be stronger in those places that lye more perpendicularly under it. And yet when the Dog-days are so vehemently hot with us, it is Winter in other parts: So that they beyond the Line may as well believe the Dog-Star to be the cause of Cold, as we to believe it to be the cause of Heat.

IV. SOPHISM.

Imperfect Enumeration.

There is no vice of Argument into which the Learned fall more easily than into this of false Enumeration, and of not duly considering all the manners

manners how things may be, or be effected, which makes 'em conclude rashly, either that it is not, because it is not in such a manner, though it may be after another manner; or else that it is after such or such a manner, when it may be after another manner than they have yet thought of.

We may find several of these defective Arguments in the Proofs upon which *Gassendus* establishes the Ground of his Philosophy, viz. That *Vacuum* is interspac'd between the Parts of Matter which he calls his *Disseminated Vacuum*. And I am the more willing to produce 'em, in regard that *Gassendus* having been a famous Person in his time, and of great knowledg in the most curious parts of Learning, the Errors and Failings which are to be seen scattered into many great Volumes of his Works published after his death, are therefore the more worthy to be known and discuss'd: whereas it would be to no purpose to take notice of the Errors so frequent in Authors of no account.

The first Argument which *Gassendus* employs to prove his *Disseminated Vacuum*, and which he would make us believe to be as certain as a Mathematical Demonstration, is this,

If there were not a *Vacuum*, but that the whole were fill'd with Bodies, the motion would be impossible, and the world would be a meer heap of Stiff, Inflexible and Immoveable Matter. For the World being all full, no body could be mov'd but it must go into the place of another. Thus if the Body A. be mov'd, it must displace another Body at least equal

to it, viz. B. and B. removing must displace another. Now this cannot happen otherwise than two ways : one that this displacing of Bodies must extend it self to Infinity, which is Ridiculous and Impossible : the second that the motion must be Circular, that so the last body remov'd may supply the place of A.

Hitherto there is no imperfect Enumeration appears : and it is true moreover, that it is a Ridiculous thing to imagin, that one body being remov'd other Bodies suecessively by removing displace one another to Infinity : Only they say, that the motion is Circular, and that the last Bodies being removed, possesse the place of the first which is A. and so the whole is full. And this is that which *Gassendus* undertakes to refute by the following Argument. The first Body removed which is A. cannot be moved, if the last which is X. do not move. Now X. cannot move for that if it remain it must possess the Place of A. which is not yet void ; and so X. not being able to move, neither can A ; for which reason the whole must be immoveable. All which Argument is founded only upon this Supposition, that the Body X. which is immediately before A. cannot be removed, unless the place of A. be void before hand, when it begins to move. So that before that instant that it possesse that place, there may be said to be another which may be said to be *Vacuum*.

But this Supposition is false and imperfect. For there is yet another case, wherein it is very impossible

ble that X. may be moved, that is to say, that at the same instant that it possesses the place of A, A. may quit that place, and in that case, there will be no inconvenience, if A. push B. forward, and B. thrusts forward C. till they come to X. and that X. at the same time possesses the place of A. For by this mean there will be a Motion, and yet no *Vacuum*.

Now that it may be possible that a Body may possess the Place of another Body at the same instant that the Body leaves it, is a thing which we are obliged to confess, in whatever Hypothesis, provided only that we admit some continued Matter. For example let us grant two parts in a Staff, immediately contiguous, it is evident that at the same time that the place is quitted by the first, it is possessed by the second, and that there is no instant wherein there can be said to be a *Vacuum*. But this is more clear by an Iron Circle that turns about its Center, for then at the same instant every part possesses the space which was quitted by that which went before, with that celerity that will admit no *Vacuum*, so much as to be imagined. Now if this be possible in a Circle of Iron, shall it not be the same in a Circle partly of Wood, and partly of Air? And therefore the Body A. supposed to be of Wood, pushing forward, and displacing the Body B. supposed to be of Air, why may not B. displace another, and that another to X. which shall enter into the place of A. at the same instant that A. quits it?

It is clear then that the said effect of *Gassendus's* Reason proceeds from hence, that *Gassendus* thought that one Body could not possess the Place of the other, but that the place must be void beforehand, and in a preceding instant; not considering that there was the same instant of quitting and possessing.

His other proofs are deduced from several experiments, by which he proves with good reason that the Air is compressed, and that new Air may be forced into the place which seemed already full; as we see in Wind-Guns and Bladder Foot-balls.

Upon which Experiment he forms this Argument. If the space A. already full of Air, be capable to receive a new quantity of Air by Compression, of necessity this new Air, must either be forced in, by Penetration into the space already possessed by Penetration, which is impossible; or else that the Air which is enclosed in A. does not entirely fill the space; but that between the parts of the Air there were certain void spaces, wherein this new Air is received; And this second *Hypothesis* says he, proves what I aim at, which is to make it out, that there are void spaces between the parts of matter. But it is very strange, that *Gassendus* did not apprehend that he reasoned upon a false Enumeration, and that besides the *Hypothesis* of Penetration, which he had reason to judge naturally impossible, and that of *Vacuums disseminated* between the parts of Matter, there was yet a third, of which he says nothing, and which being possible, is the reason that

that his Argument concludes nothing. For we may suppose that between the thick and gross parts of the Air, there may be another more subtile rarify'd, and which being able to pass through the pores of all the Bodies, causes the space which seems full of Air, to receive other new Air. For that this rarify'd Matter being chas'd out of the pores through the parts of the Air which is forced in, gives way to the new Air.

And indeed Monsieur Gassendus was so much the more obliged to refute this *Hypothesis*, as admitting himself this subtile matter which penetrates Bodies, and passes through the Pores, in regard he affirms, that Cold and Heat and certain little Bodies that enter the Pores of our Bodies, and asserts the same thing of Light, and acknowledges, in that famous Experiment made with Quick-Silver, in pipes fill'd up to the height of two foot three fingers and a half, leaving still a space above that length which seems void, as not being fill'd with any sensible matter; I say he acknowledges, that space cannot be called *Vacuum*, as being penetrated by the Light which he takes for a Body.

And so by filling with subtile matter those spaces which he takes to be void, he will find as much space for his Bodies to enter, as if they were actually void.

V.

To judge of a thing which only agrees with it by accident.

This

This Sophism is call'd in Schools *Fallacia accidentis*, the *Fallacy of the Accident*. When we draw an absolute Conclusion simple and without restriction from what is not true but only by accident. This is that which causes so many people to exclaim against Antimony, because that being ill apply'd produces bad effects. And that others attribute to Eloquence all those bad effects which the abuse of it produces ; and to Physic the Faults of Ignorant Doctors.

But it is no Sophism, as the Papists pretend, when urged against those Inventions of Satan, Invocation of Saints, Veneration of Reliques and Praying for the dead which were never of any antiquity, but superstitious cheats impos'd upon the people by Popes far remote from Antiquity in the times of darkeft Ignorance and Impiery.

We also fall into this vitious way of arguing when we take simple occasions for real causes ; as if we should accuse the Christian Religion for having been the cause of the Massacre of so many Multitudes, who rather chose to suffer Death than renounce Christ ; whereas we are not to impute those Murders to the Christian Religion, nor the Constancy of the Martyrs, but only to the Injustice and Cruelty of the Pagans.

We also find a considerable example of this Sophism in the Ridiculous Arguments of the *Epicureans*, who concluded that the Gods had human shape, because that only man is endued with Reason.

The Gods, say they, are most happy. None can be happy without vertue, there is no vertue without Reason, and Reason is found no where but in human Form; we must therefore confess the Gods to be of human shape.

But they were strangely blind, not to see that the Substance which thinks and reasons, may be joyned to the Body; 'tis not human shape that causes Thought and Reason in man. It being ridiculous to imagin that Thought and Reason depend upon a mans having a Nose, a Mouth, Cheeks, two Arms, two Hands, two Feet. And therefore it was a Childish Sophism of those Philosophers to conclude that there could be no Reason but in human shapes; it being only joyn'd by accidents to human shape in Man.

VI.

To pass from sence divided to sence compos'd, or from sence compos'd to sence divided.

The one of the Sophisms is called *Fallacia Compositionis*, *Fallacy of Composition*; and the other *Fallacy of division*, which are both apprehended better by examples.

Jesus Christ saith in his Gospel, speaking of his Miracles, *The Blind see, the Lame walk, the Deaf hear.* This cannot be true, while we take things separately and not conjoynly, that is to say, in a sence divided, and not in a sence compos'd. For the blind see not, while they are blind, neither do the

the deaf hear, while they remain so ; but after they had recovered their sight and hearing by the Miracles of *Christ* they both heard and saw.

In the same sence it is said in Scripture that God justifies the wicked. Not that he accompts those for just who abide in their wickedness ; but that by his Grace he justifies those who were Impious before.

On the other side there are some Propositions, which are not true but in a sence oppos'd to that which is the sence divided. As when *St. Paul* says, that Slanderers, Fornicators and Covetous men shall not enter into the Kingdom of Heaven. For it is not meant that none of those who are Guilty of those vices shall be saved ; but only those who remain impenitent, and obstinately go on in their sins shall not enter into the Kingdom of Heaven.

It is manifest now that there is no Transition from one of these senses to the other without a *Sophism*. And for example, it is apparent that they would argue very ill, that should hope for Heaven, that persevere in their sins, because that *Christ* came to save sinners, and because he says, that wicked women shall precede the Pharisees in the Kingdom of Heaven ; seeing that he did not come to save sinners abiding in their sins, but to teach and admonish 'em to forsake their sins.

VII.

To pass from what is true in some respect to what is simply true.

This

This call'd in the Schools *à dicto secundum quid ad dictum simpliciter*. As for example the Epicureans prove that the Gods had human shape, because there is no form so lovely as that, and for that all that is lovely ought to be in God. For human form is not absolutely Beautiful, but only in respect of other Bodies. And so being a Perfection only *secundum quid*, or in some respect and not simply, it does not follow that it ought to be the shape of God, because all perfections are in God, there being no perfections but what are simply so, that is, which exclude all manner of Imperfection, that can be ascribed to God.

We find also in Cicero, Lib. 3. *de Natura Deorum*, a Ridiculous Argument of Cotta, against the Existence of God, which may be reduced to this Sophism: *How*, says he, *can we conceive God, when we can attribute no virtue to him? for shall we say that he has Prudence? Prudence consists in the choice of good and evil: now God can have no need of this choice, not being capable of any evil. Shall we say that he has Understanding and Reason? we make use of Understanding and Reason to discover what is unknown to us by what we know: now there can be nothing unknown to God. Nor can Justice be in God which only relates to Human Society: Nor Temperance, because he has no pleasures to govern; nor Fortitude, for that pain never oppresses God, nor labour wearies him; and besides he is expos'd to no danger. How then can that be God, which has neither understanding nor virtue?*

Nothing

Nothing can be conceived more impertinent than this manner of arguing. For thus might any Country man discourse, who never having seen any other than Thatcht Houses, and having heard that in Cities there are no Houses covered with Thatch, should thence conclude that there are no Houses in Cities, and that they who live in Cities live miserably exposed to all the Injuries of the Weather. For thus Cotta, or rather Cicero argues. There can be no vertues in God like to those which are in men; therefore there can be no vertue in God. And what is more wonderful is this, that he does not conclude, that there is no vertue in God but only because the imperfections of human vertue cannot be in God. So that it is one of his proofs that God wants understanding and knowledge, because all things are known to him. That is, that God sees nothing, because he sees all things: that he is unable because he is Omnipotent: that he enjoys nothing of happiness, because he enjoys all felicity.

VIII

To abuse the Ambiguity of words because it may be done divers ways.

To this sort of Sophism may be referr'd all Syllogisms that are vicious, as having 4 Terms. Whether it be that the middle Term be taken twice particularly, or whether it be that it is taken in one sence in the first Proposition, and in another sence in the second,

cond, or lastly whether the Terms of the Conclusion be not taken in the same sence in the Premises, as in the Conclusion. For do not restrain the word Ambiguity to the only words which are grossly equivocal ; for they rarely fail, but we mean by that whatever can change the sence of words, especially when men are not easily aware of the change, in regard that divers things being signified by the same sound they take 'em for the same thing. In reference to which may be seen what has been said already toward the end of the first Part, where we have not only spoken of the Remedies against the Confusion of Ambiguous words, by defining 'em so clearly that no man can be deceived.

I shall therefore produce some examples of this Ambiguity that many times deceives men of ripe apprehensions. Such is that, which is found in words that signifie some *Whole*, which may be taken either Collectively or Distributively ; thus ought the Sophism of the *Stoicks* to be resolved, who argued that the World was an Animal endu'd with Reason.

For that which has the use of Reason is better than that which has not.

Now there is nothing, say they, can be better than the World.

Therefore the World hath the use of Reason.

The Minor of this Argument is false, because they attribute to the World what is only to be ascribed to God. Who is such a *Being*, than which there can be nothing greater or more perfect. But if it be spoken of the Creatures only nothing can be more
per-

perfect than the World, if it be Collectively taken for the Universality of things created by God. But hence it can only be inferr'd that the World is endu'd with Reason, in some of its parts as Angels and Men; but Conjunctively it cannot be said to be a Rational Animal.

It would be also a bad way of Arguing to say, that a man thinks, or a man is compos'd of Soul and Body, therefore the Soul and Body think. For it is sufficient to say that a man thinks, when one part of him only is said to think; from whence it no way follows that the other part thinks.

I X.

To draw a general Conclusion from a defective Induction.

We call Induction, when the search of several particulars leads us to the search of a General Truth.

Thus when we have experimented that most Seas are Salt, and that the water of most Rivers is fresh, we generally conclude that the Sea-water is Salt, and River-water fresh. The various Experiments which we make that Gold loses nothing in the fire, gives us reason to judge that this is true of all Gold. And in regard we never met with any people but what spoke, we believe that all men speak, that is make use of Sounds to signify their Thoughts.

From

From this Induction also all our knowledge takes its rise, in regard that particulars present themselves to us before Universals ; though afterwards we make use of Universals to understand particulars.

However it is equally certain, that Induction alone is never any assured means to acquire perfect knowledg, as we shall demonstrate in another place. The consideration of Singulars, affording an opportunity only to the understanding to be more attentive upon natural *Ideas*, according to which we Judge of the Truth of Generals. For example, I should never have thought of considering the nature of a Triangle, had I never seen a Triangle which gave me an occasion to think of it. However it is not the particular Examination of all Triangles which makes me conclude generally and certainly of all, that the space which they comprehend is equal to that of a Rectangle of all their Base, and the half of their Height (for this examination would be impossible) but the sole consideration of what I know is included in the *Idea* of a Triangle which I find in my understanding.

However it be, having resolved to treat of this matter in another place, it suffices here to say, that defective Inductions, that is to say, such as are not entire, are the causes of manifold Errors. I shall only produce one memorable Example.

All Philosophers to this day, have held it for an unquestionable Truth, that a Pipe being stopp'd, it was impossible to pull out the stoppel without breaking the Pipe, and that water might be forc'd

as high as a man pleases by the help of *Crisilian Engines* called *Aspirant Pumps*. And that which made 'em so confident was, that they thought themselves assured of it by a most certain Induction, as having made an infinite number of Experiments. But both the one and the other is found to be false; for that new Experiments have since been made that a Stopple may be drawn out of a *Syphon* never so well stoppt without breaking the Pipe, provided the force be equal to the weight of the *Cylinder* of the Water, thirty three foot high, and of the same thickness with the Pipe: and that in *Pumps* aspirant the water does not ascend higher than from thirty two to thirty three foot.

CHAP. XX.

Of bad reasoning in Civil Conversation and common Discourse.

Hitherto we have shewn Examples of false Argumentations in matters of Science. But because the principal use of reason does not consist in acquiring Sciences that are of little use for the conduct of well living, wherein it is of dangerous consequence to be deceiv'd; it will be of much more advantage to consider generally, that which engages men into these false Judgments which are made of all sorts of things, and blind men with prejudice in matters

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chiefly

chiefly importing manners, and conducing to the Government of Civil Life, and are the general Subjects of our Common Discourse. But in regard this design would require a Treatise by it self, which would comprehend almost all Morality ; we shall only mark out here in general a part of the causes of those false Judgments that are so common among Men.

We shall not here spend time in distinguishing false Judgments from bad reasoning ; as well for that false Judgments are the sources of bad Reasonings, which they draw after 'em by a necessary Consequence ; as also for that there is for the most part an implicate and latent Ratiocination in that which to us appears a simple Judgment, there being always something that serves as a Motive and Principle to that Judgment. For example, when we say that a Stick is crooked in the Water, because it so appears to us ; This Judgment is grounded upon this general and false Proposition, that what appears crooked to our senses is crooked indeed, and so includes a reason which does not display it self, generally therefore considered, the causes of our Errors may be referr'd to two heads ; the one internal, which is the Irregularity of our will, that troubles and disorders our Judgment ; the other External, which consists in the Objects of what we judg, and which delude our understanding by a false appearance. Now that these causes are seldom separated ; nevertheless, there are certain Errors wherein the one discovers it self more plainly than the other ; and therefore we shall treat of 'em
3 part.

Of the Sophisms, of Self-love, Interest and Passion.

If we carefully examin why some men so obstinately dote, rather upon one Opinion than another, we shall find it to be not through any penetration into the Truth, or the force of Arguments, but some engagement of Self-love, Interest or Passion. This is the weight that weighs down the Ballance, and which determines the most part of our doubts; this is that which gives us the greatest shogg to our Judgments, and stops the career of Consultation. We judg of things not as they are in themselves, but as they are in respect of us: and Truth and Profit are to us the same thing.

We need no other proofs of this, than what we see every day, that things in other places generally held for doubtful or false, are accounted altogether uncertain by all those of one Nation, Profession or Order. For it not being possible that what is true in *Spain* should be false in *France*; or that the understanding of the *Spaniards*, that, while both judge of things by the Rules of Reason, what generally appears true to the one, should generally appear false to the other, it is apparent that this diversity of Judgment can proceed from no other cause than that the one are pleas'd to hold for Truth what is for their advantage, which not being for the interest of the other, they have a contrary opinion of it.

Now what is there more unreasonable, than to take our Interest for a Motive to believe a thing? All that ought to be done in such a case, is but to consider

the more attentively to us the reasons that may discover to us the Truth of what we desire should be true. Nor is there any other Truth than this, that ought to be independant from our desires, which ought to prevail over us. I am of this Country, therefore I must believe that such a Saint first Preached the Gospel here. I am of such an Order, therefore I believe such an Institution is true. But these are no Reasons. Be of what Order or Country soever, we are only to believe what is true, and which we would believe, of whatever Country, Profession or Order soever we are.

I I.

But this Delusion is now apparent when it happens from change of Passions. For tho all other things remain in the same condition, yet to them that are provoked with new Passions it seems, that the new change that has happened in their Desires, has altered the whole course of things, which are any way related to 'em. As we find that there are some Persons, that will not acknowledg any good Quality, either natural or acquired, in those against whom they have conceived an Antipathy, or that have in any thing thwarted their Sentiments, their desires or their Interests? Presently such must be traduced for rash, haughty, ignorant, perfidious, faithless and void of all Conscience. Their Affections are no less unjust and immoderate than their desires. If they have an Affection to another, he is free from all manner of Faults. All that they de-

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fire is just and easie, whatever they do not desire, unjust and impossible ; without alledging any reason for these Judgments, other than that over-rules 'em. So that altho they do not form this rational Argument in their Minds. I love him; therefore he is the most accomplished Person in the world ; I hate him; therefore he is a worthless Rascal ; yet they do it in their hearts ; and therefore we may call these sorts of Extravagances, Sophisms and Delusions of the heart ; whose Nature it is to transport our Passions to the Objects of our Desires, which we therefore judge to be such as we would have, or desire they should be. Which is a thing most unreasonable, since our Desires change nothing of the *Being* of what is without us ; and that there is none but God alone whose will is so all-powerful, that things are always what his pleasure it is they should be.

I I I.

We may also refer to this Delusion of Self-love that other delusion of those who determine all things by a most general and convenient Principle, *That they have reason and know the Truth.* Whence it is no difficult thing for them to determine, that they who think the contrary are deceived : for the conclusion necessarily follows.

The Mistake of these Persons proceeds only from hence that the good opinion which they have of their Wit causes 'em to deem all their thoughts to be so clear and evident, that they believe the bare pro-

pounding 'em to be sufficient to make all the world submit. And for this reason they take little care to bring proofs.

They give little ear to the Reasons of others ; they would carry the day by their own Authority ; because they make no distinction between their Authority and Reason : They take all Persons for inconsiderate who are not of their Opinion ; not considering that if others be not of their Judgments, they themselves are not of the Opinions of others ; and that it is not just to suppose without proof, that we have reason, when we make it our business to convince others that differ from us, for no other Reason, but because they believe we are not in the Right.

I V.

There are others who have no other ground to reject certain Opinions, than this pleasant Argument, *If it were so*, I should not be a Learned Person, now I am a Learned Person, therefore it is so. For this reason, certain past profitable cures in Phÿsic have been neglected, and so many certain Experiments have been laid aside, because they who had not the good hap to think of 'em, were afraid to be thought to have been so long in an Error. How ! say they, if the Blood had any Circular Motion in the Body, if the nourishment did not pass to the Liver through the *Mesaraic* Veins. If the Vein Artery conveyed the Blood to the Heart ; If the Blood ascended through the descending hollow Vein ; if Nature did not dread a *Vacuum* ; if
the

the Air were Ponderous and had a Motion downward, I had been ignorant of many important things both in Physick and Anatomy. And therefore these things must not be so. Therefore for the cure of such distempered Fancies, there needs but only this wholesome Instruction, that it is a small matter for a man to be deceived, and that they may be learned in other things, tho perhaps not so well vers'd in new discoveries.

V.

There is nothing also more common, than to hear men scurrilously revile one another, and to tax one another of Obstinacy, Passion and Litigious wrangling, because they cannot agree in their Opinions; and so they that are in the right, and they that are in the wrong, talk all the same Language, make the same complaints, and ascribe to another the same defects, than which there is hardly to be found a greater mischief among men, and which obscures Truth and Error, Justice and Injustice in such a manner, that it is impossible for the vulgar sort of men to discern 'em; and hence it happens that several men adhere at hap hazard, some to the one, and some to the other, of the two dissenting parties, and that others condemn both being equally in the wrong.

Now all this Fantasticalness of humour arises from this distemper, that every one is conceited of his own reason. For from that Principle it is easie to conclude, that all those that contradict us are opinio-

nated ; since obstinacy is nothing else but a stubborn refusal to submit to Reason.

Now though it be true, that these Reproaches of being Passionate, Blind and Brablers, which are very unjust from those that are in the wrong, are just and lawful from those that are in the right: nevertheless, because the Truth is suppos'd to be upon the Upbraider's side, prudent and judicious Persons, that handle any matter in Controversie ought to avoid the use of 'em before they have sufficiently confirmed the Truth and Justice of the Cause, which they maintain ; and never let them accuse their Adversaries of obstinacy, rashness and want of common Sense, before they have well prov'd it. Let 'em never say, before they have made it appear, that they talk absurdly and extravagantly: For the others will retort as much back again ; for this is the way never to come to any issue. So that it will be much better to observe that equirable Rule of St. Austin; *Let us omit those common things that may be spoken on either side, though they cannot be spoken truly of either side.* And then they will think it sufficient to defend the Truth with those Arms which are most proper, and which falshood cannot borrow, which are clear and solid Reasons.

V I.

Men are not only fond of themselves, but naturally also jealous, envious and maligners one of another, hardly enduring others to be preferr'd before 'em, as coveting all advantages to themselves :
and

and as it is a thing that deserves great honour to have found out any Truth, or brought any new Light into the world, all men have a secret desire to ravish that honour to themselves ; which often engages men to encounter the Opinions and Inventions of others without any shadow of Reason.

And therefore as Self-love causes us frequently to utter these ridiculous sorts of Reasoning, This is a thing of my own Invention ; this proceeded from some of my own Profession ; this fits my humour ; and therefore it is true. So natural Malignity suggests another way of Arguing no less absurd. 'Twas another, and not I, that said it, therefore 'tis false ; 'Twas not I that made this Book, therefore 'tis idle and silly.

This is the source of the spirit of Contradiction so frequent among men, which when they hear or read any thing of another man's, they take little heed of the Reasons urg'd for Convincement, and mind only those which they think they can oppose. They are always upon the Sentry against the Truth, and think of nothing but how to repel and obscure it, where they generally prove successful, the wit of man being an inexhaustible spring of false Reasons.

When this vice predominates, it marks out one of the Principle Characters of Pedantry, whose chiefest pleasure and delight it is to brabble and wrangle about petty things, and to contradict all men with a mean and abject Malignity. But sometimes this vice lyes more conceal'd than to be easily per-

ceived, and it may be affirmed, that no man is exempted from it, because it is rooted in self-love which never dies in Men.

The knowledge of this Malignant and envious disposition which resides in the Bottom of Mens hearts teaches us one of the most important Rules that are to be observed, for fear of engaging those with whom we dispute into headlong Error, and alienating their minds from the love of that Truth to which we endeavour to invite 'em, is this, that is to say, as little as may to irritate their envy and jealousy by boasting of a Mans self, or by speaking of other things on which those affections may lay hold.

For men passionately in love with themselves impatiently brook those Honours which are done to other men; whatever they cannot challenge to themselves is odious and troublesome, so that oftentimes from the hatred of the Person they fly out into a hatred of his Reasons and Opinions; and therefore prudent men avoid as much as in 'em lies, the exposing of their Advantages of parts and endowments to the Eyes of other men, they withdraw from publick view, and fly applause; and rather chuse to lye hid among the croud, to the end that nothing may appear in their Discourses but the bare Truth which they propose.

The deceas'd Monsieur *Paschal* who knew as much of Rhetoric as ever any person living, extended this Rule so far, as to affirm that every wise man ought to abstain from so much as naming him-

himself, or making use of the words *I*, or *Me*: and was wont to say upon this Subject, that Christian Piety had abolish'd that humane Expression, *I*, which common civility had only before suppress'd, not that this Rule ought to be so exactly observed: neither. For there are some occasions, where it would be a vain Torture, to forbear the mention of a mans self.

But it is good to have this Rule always before a Mans Eyes, whereby we may the more easily shun that evil custom of some persons, who never talk but of themselves, and are always quoting themselves, when there is no question concerning their Sentiments. Which give an occasion to their Hearers, that this so frequent respect of themselves arises from a Secret complacency which they bear toward the object of their Love; and raises in 'em by a natural consequence a secret aversion for other persons, and whatever they say.

And this is that which shews us, that one of the most unworthy Characters of a person of credit is that which *Montaigne* has affected; which is, to entertain his Readers with nothing else but his own Humours, his own Inclinations, his own Fancies, his own Distempers, Vertues and Vices: all which arises as well from a defect of Judgment as from a violent love of himself. True it is that he endeavours as much as he can to remove from himself the suspicion of a mean and popular vanity, speaking freely of his defects, as well as of his good Qualities; wherein there is something of comely, through an appear-

appearance of sincerity. But it is easie to see that all that is but a kind of Sport and Artifice which ought to render him more odious. He speaks of his vices to display 'em to the world, not to cause a detestation of 'em, not esteeming 'em any diminution of his Honours. He looks upon 'em as things almost indifferent, and rather pieces of Gallantry than Ignominy. If he discover 'em, 'tis because he thinks they little concern him, and that he believes himself never the worse, nor more despicable for what he has done. But where he apprehends any blot or stain of his credit, no man more cunning or diligent to conceal it. For which reason an eminent Author of this age very pleasantly observes, that seeing he was so careful to little purpose, to advertise us, that he had a Page

(who was a sort of Servant little becoming a Gentleman that had not above six thousand* *Livers Tournois* a year) he did not take the same care to tell us that he had a Clerk too, seeing he was a Councillor in the Parliament of *Bordeaux*. But that employment, though very honourable in it self, was not sufficient to shew the vanity of the man who would rather be thought a Gentleman and a Soldier, than one of the Long Robe, and a Pleader of Proccesses.

However it is very probable he would not have conceal'd that part of his life, could he have found out any Marshal of *France* that had been a Councillor of the Parliament of *Bordeaux*, as he was since he is no less diligent to trumpet forth himself to have been Mayor of that City, ere he has first told

us that he succeeded *Marshal Byron*, and resign'd it to *Marshal Matignon*.

But the vanity of this Author is not his worst crime, he is so full of shameless infamy, so abounding in Epicurean and impious Maxims, that 'tis a wonder he has been so long suffered to be publick in the World, and that so many Persons of great understanding have taken so little notice of the venom that spreads it self in all his Writings.

We need no other proofs to judge of his Libertinism than his manner of repeating his Vices. For Confessing in his Book that he had been guilty of several Criminal Disorders, he declares nevertheless in other parts that he never repented of any, and that if he were to live over his life again, he would again act the same things: *As for my self*, says he, *I would not desire in general to be other than I am. I might Condemn my Universal Form; I might desire of God an entire Reformation, and to excuse my natural Infirmities, but I ought not to call this Repentance no more than a discontent that I am not an Angel or Cato. My Actions are regulated and conformable to what I am, and my Condition and Repentance do not properly concern us as to those things that are not in our Power. It was never in my thoughts monster-like to tie the tail of a Philosopher to the Head and Body of a Profligate, nor that the end and remainder of a wretched and miserable life should accurse and belye the fair, entire and longer part of my days. Were I to live 'em over again, I would live 'em as I have done, nor do I complain of what is past, nor do I fear what is to come.* Horrible

rible words, and which denote an utter extinction of all thoughts of Religion. But well enough becoming him who thus delivers himself in another Part. *I plunge my self headlong stupidly into Death, as into a silent and obscure Abyss, which swallows me up all at an Instant and stifles me in a moment, full of powerful sleep, full of Insipidness and Indolency ; and in another place Death is no more than a Quarter of an hours suffering, without future Consequence or Harm, and which merits no particular precepts.*

Now though this Digression seems remote from the matter, yet it returns again where it left off, for this reason, in regard there is no Book that more infuses this evil custom of magnifying a mans self, of making use of himself and his own thoughts upon all occasions, and requiring others to do so too. Which extreamly corrupts in us our Reason and Sence, through that vanity which always accompanies these Discourses ; and in others, through that hated Antipathy which they have against it. Therefore no men are permitted to speak of themselves, but persons of eminent vertue who testifie by their manner of doing it, that they only publish their good Actions, only to excite others to praise God, or for their Edification ; and if they also make their faults publick, it is only to humble themselves before men, and to dissuade 'em from the like courses. But for common persons it is a ridiculous vanity, to inform others of their petty parts, and an Impudence deserving punishment to discover their Disorders to the world without the least touch of remorse.

since

since it is the highest excess of vice neither to blush, nor be asham'd, nor repent of evil actions; but to discourse carelessly and indifferently of their Impieties, as of other matters; wherein properly consists the excellency of *Montaigne's* Wit.

V I I.

We may distinguish from malignant and envious contradiction, another Humourless mischievous, but which engages us in the same errors of reasoning, which is the Itch of disputing, which very much depraves the understanding.

Not that Disputes are to be blam'd in general, rather the contrary is to be affirm'd, provided a right use be made of 'em; for so there is nothing more serviceable, either for the discovery of Truth, or to convince others. The motion of a wit altogether busied in the examination of some knotty matter, is generally too cold and languishing. There is a certain Ardor requisite to excite and awaken its *Ideas*. And it frequently comes to pass, that by diversity of opposition, we discover where consists the difficulty of perswasion, and the obscurity of the *Thesis*; which gives us an occasion to endeavour to overcome it.

But true it is, that as this Exercise is profitable, when we make a right use of it, disengaged from passion; so it is as dangerous when we make a wrong use of it, and glory in maintaining an Argument, at what rate soever, merely for contradictions sake.

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There being nothing more effectual to Eloigne us from Truth, and plunge us into Figaries and idle Humours, than this sort of humour. Hence we accustom our selves to seek for reasons every where, or rather to set our selves above reason, to which we scorn to submit. Which by little and little leads us to have nothing certain, and to confound Truth with Error, looking upon the one and the other, as equally probable. Which is the reason, that it is a thing so rare, that we determin any thing by dispute, and that it never happens that two Philosophers agree. We have always something to reply, and wherewith to maintain the Combat ; because it was never their intention to avoid the error, but being silent ; believing it less ignominious to be always deceived, than to confess themselves once mistaken.

Therefore, unless we have accustomed our selves by long exercise to govern our passions, it is a difficult thing not to loose the prospect of Truth in Disputes, there being nothing that more heats and exasperates all regulated Affections. *What Vices do they not awaken*, saith a famous Author, being for the most part commanded by choler ? We are at enmity first with the Reasons, and then with the Passions. We learn to dispute meerly to contradict ; and while every one contradicts and is contradicted, it happens that the Fruit of dispute is the Annihilation of Truth. One goes into the East, another into the West, they loose the Principal, and wander in a croud of Incidents ; after an hour of Storm and Tempest, they know not what they seek, one

below, another above, another on one side, another lays hold of a word and similitude to carp at, another neither hears nor understands any more than that he is oppos'd, and is so intent upon his Race, that neglecting his opponent, he pursues himself only. There are others, who finding themselves too weak, fear every thing, refuse all, confound the dispute at the Beginning, or else in the middle mutinously give over, affecting a haughty contempt, or an avoiding of contention insipidly modest.

Another, so he may hit his Adversary, cares not how he lays himself open to his Opponent. Another counts his words, and weighs 'em for reasons. Another only makes use of the advantage of his Voice and his Lungs. And some you shall see, that argue against themselves; and some there are that tire and dunny all the world with long Prefaces and useless Digressions: And others there are that Porcupine themselves with Reproaches, and will quarrel like *Dutchmen* in their drink, to shear clear of a Person that presses too close upon 'em in a dispute. These are the ordinary vices of our Disputants, which are ingeniously described by this Writer, who being ignorant of the true dignity of human Nature, has sufficiently understood the vices and corruptions of it, from whence it is easie to judge, how apt these contentious disputes are to disorder the mind, unless a Man be very wary, not only how he falls first himself into these Errors, but also how he follows others into the same snares; and
so

so to regulate himself, that he may be able to observe the Figaries of others, without wandering himself from the end which he proposes, which is the Dilucidation of the Truth.

VIII.

There are some Persons, chiefly in the Courts of Princes, who, knowing how troublesome and displeasing these humours of contradiction are, steer a quite contrary course, which is to commend and applaud all things indifferently. And this is that which they call *Complaisance*; which is a humour more commodious for the gaining of preferment, but altogether as ruinous to the judgment. For as they that study contradiction, take always for the Truth, the contrary of what is spoken; the *Complaisant*, admit for truth whatever you say to 'em, and this custom corrupts, first their Discourse, and then their Understanding.

Hence Commendations are become so common, and Praise so promiscuously bestow'd upon all Men, that we know not what to conclude of the Persons applauded. What Preacher is there whom the *Gazette* does not extol, for the most eloquent of Men, and a Ravisher of his Auditory, through the profoundness of his Learning? All that die are illustrious for their Piety. Petty Authors might make whole Books of Elogies, which they receive from their Friends. So that in this excessive Prodigality of *Encomiums*, made with so little discretion, we

cannot

cannot but wonder that Men should be so covetous of 'em.

It is impossible but that this confusion in Language, must breed the same confusion in Understanding, and that they who accustom themselves to praise every body, must accustom themselves also to approve every thing. But though the falsity should be only in the words and not in the mind, yet it should serve, methinks, to alienate from it, those that sincerely love Truth. It is not necessary to reprove whatever a Man sees amiss. But there is a necessity of not commending what is truly commendable; otherwise we throw those that we thus commend into delusion: They contribute to deceive those, who judge of these Persons by their praises; and they wrong those that merit true praise, by making it common to those that deserve it not; and lastly we destroy all Faith of Speech, and confound all the *Ideas* of Words, making 'em cease to be the signs of our Judgments and our Thoughts, but only of an outward Civility, which we are willing to pay to those we commend. Which is all that is to be concluded of ordinary Praises and Complements.

I X.

Among the several ways that Self-love plunges Men into error, or rather fixes 'em therein, we must not forget one, which without doubt is one of the Chiefest and most common. That is, the engaging a Mans self to maintain an opinion, to which a Man

a Man is urged by other considerations, than those of Truth. For this condition of defending an Argument causes such a negligence, that we never regard the reasons which we make use of, whether they be true or false, but whether they may be serviceable to persuade what they go about to maintain. To this purpose they make use of all sorts of Arguments good or bad; that something may be said, to impose upon all the world. And sometimes we proceed so far, as to utter things which we know to be absolutely false, to the end that they may serve to the end which is propos'd. Of which we shall produce some examples.

No intelligent Person suspects that *Montaigne* ever believ'd all the Dreams and Extravagances of judicial Astrology. Nevertheless when he thinks it proper to make use of 'em, in contempt of Human Nature, he produces 'em as good Reasons, *When we consider, says he, the Dominion and Power which these Bodies have not only over our Lives, and the conditions of our Fortune, but over our Inclinations themselves, pusht forward at the mercy of their Influences, why shall we deprive 'em of a Soul, of Life and Discourse?*

Will he destroy the Priviledge that Men have over Beasts, by the Commerce of Speech? He tells us ridiculous Tales, of which he knows the extravagancy as well as any man, and yet from thence draws more ridiculous Conclusions. *There are some, said he, that have boasted their understanding the Language of Beasts, as Apollonius, Thyaneus, Melampus, Tyresias,*

Tyresias, Thales ; and since, as some Cosmographers affirm, there are Nations that acknowledg a Dog for their King, they must of necessity understand his Barkings, and interpret his Gesticulations.

From this reason we may conclude, that when Caligula made his Horse Consul, there was a necessity for his Officers to understand the Orders which he gave in the exercise of his charge. But we wrong Montaigne, to accuse him of this bad consequence. His design was not to speak rationally, but to make a confus'd Collection of what could be said against Men ; which however is a vice altogether contrary to the Equity of Reason, and the Candor of Ingenuity.

As insufferable is another Argument of the same Author, upon the Subject of the Heathen Southayers. Of all the Predictions of times past, the most ancient and the most certain were those which were taken from the flight of Birds. We have nothing comparable to it, nor so admirable. But this regular and orderly motion of the wing, from whence they drew the knowledge of future Consequences, must be conducted by some excellent means, to so noble an operation. But to ascribe this wonderful effect, without the consent, understanding and discourse of him, by whom it is produced, to the Laws of Nature is a madness, and the opinion is evidently false.

Is it not a very pleasant thing to see a Man, who believes nothing to be evidently true, or evidently false, in a Treatise expressly compos'd to establish Erronism, and to destroy evidence and certainty seriously

seriously exposing these raving fancies, for certain Truths, and condemning the opposite opinion for evidently false? But he only laughs at us, when he prattles in this manner, and is inexcusable for imposing thus upon his Readers, obtruding things upon them which he does not believe himself, and which it were a folly to believe.

He was without doubt as good a Philosopher as *Virgil*, yet did not he ascribe to the Intellect of Birds, those regular alterations which we see in their Motions according to the various Constitution of the Air, from whence we make Conjectures concerning the future temper of the Sky, as may appear by the following Verses in his *Georgics*.

*Non equidem credo, quia sit divinitus illis
Ingenium, aut rerum fato prudentia major ;
Verum ubi tempestas, & Caeli mobilis Aer
Mutavere vias, & jugiter humidus austris
Densat crantque rara modo ; & quæ densa relaxat.
Vertuntur species animorum, ut corpora motus
Nunc hos, nunc alios, dum nubila ventus egebat
Concipiant, hinc ille avium consentus in agris
Et lætæ pecudes, & ovantes gutture corvi.*

But for the avoiding these whimsies, when they are spontaneous, a little ingenuity suffices. The most common and most dangerous are those, which we take no heed of, because our prejudiced obligation to defend an opinion, disturbs the sight of the mind, and causes it to take for truth, whatever serves to

that end; and the only cure for this distemper is, to have no other ends but the discovery of truth it self, and diligently to examin the reasons themselves, that so the obligation may not impose upon

Of false Reasonings that arise from the Objects themselves.

We have already observed, that we must not separate the internal causes of Errors, from those which are derived from Objects, which we may call exterior; in regard the false appearance of Objects, can never throw us into error, if the Will did not precipitate the Understanding to judge rashly, before the Truth of the thing be sufficiently clear.

But because it cannot exercise this authority in things entirely evident, it is visible that the obscurity of Subjects contributes much thereto, and many times there are accidents, where the passion that carries us to reason amiss, is hardly to be perceived, and therefore it is of great importance to consider separately the fallacies that arise chiefly from the same things.

I

It is a fallacious and impious opinion, that Truth so nearly resembles Falshood, and Vertue Vice, that it is impossible to discern 'em. But it is no less true, that in most things there is a mixture of Error and Truth, of Vice and Vertue, of Perfection

on and Imperfection ; and that this mixture is one of the most usual sources of false judgments among Men.

Through this deceitful mixture it is, that the good qualities of Persons, for whom we have a respect, causes us to approve their defects ; and the defects of those for whom we have no kindness, cause us to condemn their virtues, in regard we do not consider, that persons, the most deprav'd, are not so in every thing, and that God leaves some Imperfections in the most vertuous ; which being the remains of human Infirmary, ought not to be the object of our imitation or esteem.

Therefore Justice and Reason require, that in all things which there is this intermixture of good and evil, that we should make a distinction, and it is in this judicious separation, that the exactness of our understanding appears. By vertue of this, the Fathers of the Church have extracted out of the Writings of the Heathens, those excellent things in reference to manners, and that St. *Austin* has not scrupled to borrow from a *Donatist* Heretick, seven Rules for the understanding of Scripture.

Therefore reason obliges us, when it is in our Power, to make this Distinction. But because we have not always leisure to examin particularly what there is of good or ill in every thing, it is but just upon such occasions, to give 'em the name which they deserve, and which agrees with their most considerable part. Thus we ought to say, a Man is a good Philosopher, when he usually reasons well.

well; and that a Book is good, when there is much more in it of truth than falshood.

There is also another thing wherein Men are greatly deceived when they make general Judgments of things. For oft-times they only blame or esteem such things which are most superficial and accessory; their want of Understanding not permitting 'em to penetrate the principal Matter, as not being so obvious to the Sence.

Thus altho they who have skill in Painting, esteem infinitely more the design than the colours or curiosity of Painting, yet the Ignorant are more taken with a Painting, whose colours are brisk and lively, then with a cloudy Pencil, tho the design be never so Incomparable.

We must acknowledg however, that false Judgments are not so frequent in Arts; because the Ignorant more easily comply with the Judgment of those that are Skilful. But they are frequent in such things where the People take a Priviledg to judg, as of Eloquence.

For example, we call a Preacher Eloquent, when his Cadences are just, and that he makes use of no bad words. Upon which score, Monsieur *Vauglas* affirm'd that one bad word does a Preacher or a Pleader at the Bar more Injury than a bad Argument. For it is to believ'd that he relates a matter of Fact, not an opinion of his own Authorising, it being certain that there are Persons who judg after this manner; tho it be as certain on the other side that there is nothing more remote from Truth

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then

then these sorts of Judgments. For purity of Language, and number of Figures in an Orator are no other in Eloquence, than the shadows of Colouring in Painting ; that is to say, that it is only the lower and material part ; the principal design of Oratory being to conceive things strongly and clearly in the Mind, and being conceived to express 'em in such a manner, that they may imprint in the Breasts of the Hearers a clear and lively Image of the things express'd, which not only represent the things barely as they are, but also the Motions and affections with which they are conceived. And this is that which may be found in persons not so diligent in sorting their words, and adjusting their Figures ; but is rarely seen among those who are over-curious in streining their words and similitudes ; for that same curiosity calls off their minds from the consideration of Realities, and weakens the vigour of our thoughts, as Painters observe, that they who are excellent for Colouring, are seldom good Designers ; the mind not being capable to study two things at once, and the one disturbing and hindring the other.

And indeed we may say in general, that the most part of the World judges of things by the outward appearance ; for there are hardly any that penetrate the inside and bottom of things. The Rule of all Judgment is the Title, and woe be to them whose Title displeases. Be a Man as Learned, as Prudent, as perspicacious as he pleases, if he falter in his Language, and does not answer accurately

ly to an officious Complement, he is undone for the whole Remainder of his Life, and condemned to live despised among the Vulgar. 'Tis no great matter to want due Praise; but the greatest thing is to insist upon these prejudices, and to look no farther than the back of things; and this is that we should endeavour to avoid.

II.

Among the causes that engage us in Error, through a false Lustre that hinders us from discerning it, we may justly reckon a certain pompous and Magnificent sort of Eloquence, which *Cicero* calls abounding in sounding words and copious Sentences. For it is a wonderful thing how false Reasoning steals away our assent with a Period that tickles the Ear, or a surprizing Figure that sets all the Hearers a gazing.

These Embellishments not only rob us of the Prospect of those Falshoods which are intermix'd in discourse; but insensibly allure us to others, because they seem necessary for the more curious Composition of the Period or Figure. So that when we see an Orator begin a long Gradation, or an Antithesis of several Members, we ought to stand upon our Guards; for it rarely happens that he gets quit of 'em, without wresting and screwing the Truth, to make it conformable to this Figure. He orders the same truth as they do Stones in a Building, or the materials for a Statue, he cuts and extends it,

fore shortens it, and disguises it to make it fit for the place which he designs it, in his vain piece of Workmanship and structure of words.

How many false thoughts has the desire of maintaining a nicety produced ? How many Lies has the Law of *Rhime* begot ? The great affectation to make use of none but *Ciceronian* words, and that which they call pure *Latin* ; of how many absurdities has it made several *Italian* Authors guilty ? Who would not laugh to hear *Bembo* cry that the Pope was Elected by the favour of the Immortal Gods ? *Deorum Immortalium beneficiis*. There are also certain Poets that imagin it to be essential to Poetry, to introduce the Pagan Divinities into their Poems ; and thus a certain *German* Poet, being deservedly reprov'd by *Picus Mirandula*, for having introduc'd into a Poem which he made of the Wars of the Christians, all the Pagan Divinities, and intermix'd *Apollo*, *Diana* and *Mercury* with the Pope, the Emperour and the Electors, maintains that had he not so done, he had been no Poet ; and to prove his assertion alledges for a strange Reason, that the Verses of *Hesiod*, *Homer* and *Virgil*, are full of the Names and Fables of the Gods. Whence he concludes it lawful for him to do the same.

These false arguments are imperceptible to those that make 'em, and deceive them first of all. They are dizzied with the sound of words ; and the Lustre of their Figure dazzles 'em, and the pomp of certain words allures 'em unawares to thoughts too vain and frivolous, that if they did but make any reflection

xion upon 'em, they would certainly reject 'em themselves.

Is it credible, that a Writer of this age should be so in Love with the word *Vestal*, as to use it in an Argument to perswade a young Lady not to be ashamed to learn the *Latin Tongue*, telling her that she need not be ashamed to speak a Language which the *Vestals* spoke. For had he weigh'd the force of his Argument, he could not but have apprehended that he might as well have told the Lady, that she needed not be ashamed to speak a Language, which all the *Roman Curtesans* spoke, who were far more numerous than the *Vestals*; or that she needed not to be ashamed to speak any other Language than that of her own Country, since the *Vestals* spake no other. All these Arguments that signifie nothing, are as good as any that Author brings; and the truth is, the *Vestals* can do him no Service to justifie or condemn such young Ladies that learn *Latin*.

Such false Reasonings as these which we meet with frequently in the Writings of such Authors as affect Eloquence, make it appear how much it concerns those persons that speak or write, to keep close to that excellent Rule, that there is nothing *lovely but what is true*; which would prune off an infinite number of false thoughts, and vain Embellishments from their Writings. True it is that this exactness renders the stile less Pompous, and more Barren; but it renders it more lively, more serious, more clear, and more becoming a candid Ingenuity

It makes a deeper Impression, and more durable. Whereas that which arises from Periods adjusted, is so superficial, that it vanishes almost as soon as the Periods are heard.

III.

There is another fault very frequent among Men, to judge rashly of the Actions and Intentions of others, which is occasioned by a false Reasoning, by means of which, not discerning all the causes that may produce some effect, we attribute the effect precisely to one cause, when it may have been produced by several others. Or else we suppose that a cause, which by accident has one effect at one time, as being join'd to several Circumstances, ought to have the same effect at other times.

Suppose some Learned man be of the same opinion with a Heretick in some matter altogether distinct from things controverted in Religion; presently some malicious Adversary will conclude, that he has a kindness for Heretics; but he may conclude rashly and maliciously, because that perhaps only Reason and Truth confirm him in his Opinion.

Suppose some Writer should vehemently inveigh against any opinion that he thinks dangerous; some will accuse him of Hatred and Animosity against the Author that maintained it, but unjustly and rashly; in regard this vehemence may arise from Zeal for Truth, as well as from hatred against the Persons.

Suppose

Suppose a Man be a friend to a wicked Person ; some presently will conclude him to be an accomplice with the other in his Crimes ; which does not follow, since he may be ignorant of 'em ; at least he may never have given his consent.

Some Person may have fail'd in paying that respect which he ought to have done where it was due. This Man, cry they, is proud and Insolent ; when perhaps it may be only Inadvertency, or bare Forgetfulness.

All exterior things are only equivocal signs, that is to say, such as may signifie several things, and therefore it will be rashness in him to determine this sign to any particular thing, without some particular Reason. Silence is sometimes a sign of Modesty and Judgment, sometimes of a Brute. Delay and Hesitation sometimes denotes Prudence, sometimes dulness of Mind. Change is sometimes a sign of Inconstancy, sometimes of Sincerity. So that it is a point of ill-reasoning to conclude a Man inconstant, meerly because he has changed his Opinion, for he may have reason so to do.

I V.

False Inductions by which we draw from general Propositions particular Experiments, are one of the most common Sources of false Reasoning among Men. We need not above three or four Examples to form an Axiom, and common Place ; of which we may afterwards make use as of a Principle to decide all things.

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There are many Diseases that are concealed from the most able Physicians, so that Remedies are many times of little Efficacy. From hence some Hot-spurs conclude, that Physic is altogether unprofitable, and all Physicians no better than Mountebanks.

There are some Women wanton and unchaste. This is enough for those that are jealous to have an ill opinion of those that are chaste and honest, and for licentious Authors to condemn all in general.

There are some persons that conceal great vices under a shew of piety; from whence *Libertines* conclude that all Devotion is Hypocrisie.

There are some things obscure and concealed, and we are sometimes grossly mistaken; therefore say the ancient and new *Pyrrhonians*, all things are obscure and uncertain, and we cannot certainly discern the truth from falsehood.

There is an inequality among the actions of some Men; this is sufficient to frame a common place, out of which no Man shall be excepted. *Reason*, say they, is so defective, and so blind, that what things are accounted most clear, are yet to Reason obscure; *Easie and Difficult* are the same things, all Subjects equally, and Nature in general, disavows its Jurisdiction. We think of nothing that we have a Will to, but at the very Instant we have a Will to it; and we will nothing freely, nothing absolutely, nothing constantly.

The greatest part of the World pronounce the Vertues and Vices of others only in general and Hyperbolical Terms. Out of which particular acts they

they infer Habit; out of three or four defaults Custom. That which happens once a Month, or once a Year happens every day, every hour, every moment in the Discourse of Men. So little care do they take in their Words, and the Bounds of Verity and Justice.

V.

'Tis a piece of Weakness and Injustice, often condemn'd and little avoided, to judg of Counsels by Events, and to render guilty of all the bad ensuing Consequences, those who have taken a prudent Resolution according to all the Circumstances which they could foresee; either through the bare chance or malice of those that cross'd 'em, or through some other Accidents which they could not possibly foresee.

Men not only live to be as fortunate as wise, but they make no difference between fortunate and wise, nor between unfortunate and wicked. This distinction they look upon as too nice. We are ingenious to find out the defects that we believe occasioned our bad success. And like Astrologers when they are certain of an Accident, fail not to find out the Aspect of the Star that produced it. In like manner after Calamities and Misfortunes, we never fail to pass our Censures upon the person, that he deserved 'em by his Imprudence. He did not succeed, therefore he was in the wrong. Thus they reason in the World, and thus they have always reasoned; be-
 R 5; cause

cause the Judgments of Men have always wanted the guidance of Equity, and for that not knowing the true Causes of things, they substitute others according to the Events, extolling the successful, and condemning the Unfortunate.

V I.

But there is no so sort of false Reasoning more frequent than when we judg rashly of the Truth, by vertue of such an Authority which is not sufficient to assure us ; or when we decide the bottom of things by the manner of their being Propounded. The one is called a Sophism of *Authority*, the other a Sophism of the *Manner*.

That we may understand how frequently we fall into these Sophisms we need only consider, that the most part of Men never believe one opinion more than another, upon solid and essential Reasons, which would display the Truth, but upon certain outward marks, which are more agreeable, or at least seem more agreeable to Truth than Falshood.

The reason is, that the internal verity of things lies frequently conceal'd ; that the Understandings of Men are weak, and dark, full of Clouds and false Lights, whereas the external marks are clear and perceptible. So that Men being more easily inclined to what is most facile, they always take that side where they see the external marks that are easily discernable.

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They may be reduced to two principal Heads, the Authority of the Propounder, and the manner of Propounding. And these two ways are so powerful, that they draw after 'em the Assent of almost all understandings.

And therefore God who design'd, that the certain knowledg of the Mysteries of Faith, might be acquir'd by the meanest capacities, among the Faithful, vouchsaf'd to condescend to the Infirmary of Human Understandings, which he would not therefore have depend upon a particular examination of the points, which are propos'd to us to believe, but has given us, for a certain Rule, the Authority of the Universal Church, which is the Proposer of these Articles; which being clear and undoubted, retrieves our understandings from that *Labyrinth*, where particular discussions of Mysteries, would of necessity engage it.

Therefore in matters of Faith, the authority of the Universal Church is entirely decisive; and so far it is from being subject to error, that we never fall into error, but when we wander from its authority, and refuse to submit to it.

We also draw convincing Arguments in matters of Religion, from the *manner* of their being propounded.

For example, when we find that for these many Ages of the Church, especially in these latter ages, that so many persons have endeavoured to establish their opinions by Fire and Sword, when we have seen 'em arm'd against the Church with Schism, a-
gainst

gainst the Temporal Magistrate, with Rebellion ; when we have seen People without ordinary Mission, without Miracles, without any marks of Piety, but rather with sensible marks of Impiety, undertake to change the Faith and Discipline of the Church, such a criminal manner of propounding is more than sufficient, to cause all rational Persons to reject the thing propounded , and to prevent the meaner sort from listening to such Arguments.

But in things the knowledg of which is not absolutely necessary, and where God has left every Man to his own particular reason, Authority and Manner of propounding, serve only to engage several persons in judgment contrary to the Truth.

We do not undertake here to give Laws and prescribe Rules and precise Limits of that respect which we owe to Authority in Human Things ; but to mark out some gross mistakes that are committed, touching this matter.

Sometimes we only regard the number of Testimonies, not considering whether number be the most probable Argument that we have found out the Truth. For as an Author of this age has observed in difficult things, Truth discovers it self to one, sooner than to many. Therefore, this is no good Consequence : This opinion is upheld by a great number of Philosophers, therefore it is true.

Sometimes we are perswaded by certain qualities and endowments of Men, which have no coherence with the truth of things which are discoursed of. Thus there are a great number of people that believe.

have without any other examination, those that are more aged and have more experience ; tho the things believ'd, neither depend upon age nor experience, but the acuteness of understanding.

Piety, Wisdom, Moderation, are without doubt qualities the most to be esteemed in the world, and there is a great Authority due to such persons, in things that depend upon Piety, Sincerity and an Illumination from God, probably more particularly conferr'd upon those that serve him most purely. But there are an infinite number of things that only depend upon human Intellect ; human Experience and human Penetration. In which things, they who have the greatest advantages of wit and study, merit more belief than others. Nevertheless the contrary often happens, and most Men think it most safe to follow in the same, the opinion of the greatest number.

Which comes to pass in part from hence, that these advantages of wit are not so conspicuous, as the exterior Regularity, which appears in persons of piety, and partly, for that Men never care to make distinctions. These distinctions confound 'em ; so that they will have all or nothing. If they give credit to any person in some things, they believe him in all things ; if they give no credit to another Man, they believe him in nothing. They love these ways that are short, decisive and compendious. But this humour, though usual, is contrary to reason ; which shews us, that the same persons do not merit belief in all things, because

because they are not eminent in all things, and that it is a deprav'd mode of concluding. This is a grave person, therefore he is intelligent and learned in all things.

VII.

True it is that there are some pardonable errors, such as are those, when we give a greater Respect to the Opinions of those whom we esteem to be men of Credit. But there is one delusion, much more absurd in it self, and which is nevertheless very frequent; which is to believe that a Man speaks Truth, because he is a Person of Quality, Rich and advanc'd in Dignity.

Not that any Person expressly makes these Conclusions, He has a Hundred Thousand Lieres a year, therefore he is wise. He is nobly descended, therefore we must believe what he says to be true. Such a one is a Person of no Estate; therefore he is in the wrong. Yet something like this prevails in the minds of the most part of the world, and which carries away their judgments, without any other consideration.

Let the same thing be propos'd by a Person of quality, and a Man of mean condition, they will approve what the Person of Quality utters, when they will not vouchsafe to hear what the other offers. The Scripture instructs us, touching this humour of Men, perfectly representing it to us in the Book of Ecclesiasticus. *When the Rich Man speaks all Men are silent, and extoll his words to the Clouds: if a poor Man speaks, they cry who is that?*

Certain

Certain it is, that complacency and flattery have a great share in the approbation which is given to the actions and words of Persons of Quality, and which oft-times they draw to themselves by a certain external Grace, and manner of Behaviour, noble, free and natural. Which is sometimes so peculiar to themselves, that it is hardly to be imitated by those who are of a low and mean Birth. But as certain it is, that there are also several, who approve all that great Men say and do, out of an inward proneness of spirit, which bows under the burden of Grandeur, and which has not a sight strong enough to abide its Lustre; and that the exterior Pomp which environs those great Men, imposes not a little, and makes some impression upon the more prudent sort.

The reason of this deception, proceeds from the Corruption of the Heart of Man, who having a burning passion for honour and pleasure, necessarily conceives a great love for Wealth and Riches, and those other qualities whereby they acquire both pleasures and honour. Now the Love which they have for all these things that the World admires, is the reason that they are esteem'd happy who enjoy 'em; and judging them happy, they place those Persons above themselves, and look upon 'em as eminent and exalted. Which custom insensibly glides from the consideration of their Fortunes, to the consideration of their Minds. Men do not usually do things by halves. And therefore they give the Rich and Potent a Soul as exalted, as their condition; and this is the reason of that great credit,

dir, which they meet with in all Affairs; that they manage.

But this delusion is much more prevalent in the great ones themselves, who are not careful to correct that impression, which their fortune naturally makes in their minds, as well as in the minds of their Inferiors. For there are few of 'em, with whom Riches and Dignities have not the weight of Reason, and who do not believe that their opinions and judgments are superior to the judgments of those that are beneath 'em. They cannot brook that persons whom they look upon with contempt, should pretend to have so much reason and judgment as they. And this is that which makes 'em so impatient of the least contradiction.

This proceeds from the same source, that is, from the false *Ideas*, which they have of their *Grandeur*, their Nobility and their Wealth. Whereas they should consider 'em, as things entirely Strangers to their *Being*; and which are no grounds for them to believe, but that they are equal to all the rest of Mankind, both in Body and Soul, but that their judgments are as weak, and as apt to be deceived, as the judgments of other Men. They incorporate, as it were, in their Essence, all these qualities of Great, Noble, Rich, Master, Lord, Prince; they magnifie their *Idea*, and never represent themselves to themselves, without all their Titles, and all their Train of Splendor.

They accustom themselves from their Cradles, to look upon themselves as distinct from the rest of human.

human Race: Their Imaginations never intermix with the common crowd of Men. They are always *Counts* or *Dons* in their own Eyes, never meer Mortals; and so they cut a Soul and a Judgment, according to the Proposition of their Fortune. And believe themselves no less above others in their Understanding, than they towre above 'em in Wealth and Dignity.

The Folly of Men is such, that there is nothing of which they do not make use to aggrandize the *Idea*, which they have of themselves. A sumptuous House, a Magnificent habit, and a great Perriwigg makes him esteem himself more learned than others; and if we take a nearer observation, we shall find, that some believe themselves wiser a Horse-back or in a Coach, than a Foot.

'Tis an easie thing to perswade the world, that there is nothing more ridiculous than those judgments; but it is a difficult thing to exempt 'em from the secret Impression, which these exterior things, make in the mind. All that can be done, is to accustom our selves as much as in us lies, not to give any Authority to any of these qualities that do not contribute to the finding out of Truth: Nor to them neither, farther than as they contribute effectively. Age, Knowledg, Study, Experience, Wit, Vivacity, Moderation, Accurateness, Labour, serve to find out the Truth of things conceal'd, and so far these qualities deserve to be respected. But they are diligently to be weigh'd, and afterwards to be compar'd with contrary Reasons. For from a-
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ny of these things in particular, there is nothing to be concluded of certainty ; since there are false opinions that have been approv'd by Persons of great wit, and endow'd with the greatest part of these good qualities.

VIII.

There is yet something more deceitful in the surprises which arise from the manner. For we are naturally inclin'd to believe that Man has reason, who speaks with a Grace, fluently, with gravity, with moderation, and sweetness, and to believe that Person in the wrong that speaks rashly, passionately, invectively, and with presumption in his actions, and his words.

Nevertheless, if we judge not to the bottom of things, but by these exterior and sensible manners, it is impossible but that we must be often deceived. For there are some Persons that utter their follies gravely and modestly, and others o'the contrary, who being naturally brisk and airy, or less governed by some passion that appears in their Gestures and Words, have no less truth however on their side. There are some Men of mean and superficial capacities, who having been bred at Court, where they more diligently study and practise the Art of Complacency, than in other places, have acquir'd manners that are very pleasing, under which they make pass for current many false judgments, while others not having those outward embellish-

bellishments, cease nor however to have large Intel-
lects, and solid at the bottom. There are some who
speak better than they think, and others who think
better than they speak. And therefore reason requires,
that they who are capable so to do, should not judge
by exterior appearances, but always submit to Truth,
not only when it is propos'd after these harsh and un-
pleasing, but also when it is intermix'd with innu-
merable fallities. For the same Person may speak
Truth in one thing, and false in another; be right
in this, in that wrong.

We are then to consider every thing apart, that
is, we must judge of the *manner* by the *manner*, of
the *Thing* by the *Thing*; not of the *thing* by the *man-
ner*, nor of the *manner* by the *thing*. If a Man speak
passionately, he is to be blamed, but to be applau-
ded, if he speak truth. On the other side a Man is
to be commended for speaking prudently and mode-
rately, but to be blam'd if he utter falsehood.

But great care is to be taken, least we conclude
any thing to be true or false, because it is propos'd
after such or such a manner. It is but just also, that
they who desire to perswade others into a belief of
some Truth which they have found out, should en-
deavour to cloath it in the most graceful form,
which is most proper to cause it to be approv'd, and
to avoid those irksome manners that only serve to
alienate the mind.

We must also remember, that when we
to perswade, 'tis not of so much im-
portance to speak Truth; but that it is of the

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if they be
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tance when we spake Truth, to speak only those things that are necessary to make Truth delectable.

They that honour Truth, will not dishonour it, by covering it over with the contaminations of falshood. And if they love it sincerely, they ought not to draw upon it, the hatred and aversion of Men, by delivering it in a manner ungrateful. This is the greatest precept of *Rhetoric*, therefore the more useful, because it serves to regulate the Soul as well, as our words. For though they be two different things, to be wrong in the Manner and Thing, nevertheless the Vices of the Manner are more pernicious than the Vices of the Thing.

And indeed all those fiery, insolent, bitter, opinionated passionate manners, proceed from some Irregularity of the mind, which is many times worse than the defect of intellect and knowledg which we reprove in others, and it is always unjust to think to perswade Men in that manner. For it is just that they should submit to truth when they know it, but it is unjust that they should exact from others, to hold that for Truth which we believe, upon the sole score of our Authority. Yet this is that which they do, when they propose Truth after those unpleasant manners. For the Air of the Discourse enters our minds together with the Reasons. The mind being more quick to perceive that Air, than to apprehend the solidity of the Proofs, which many times they understand not at all. Now the Air of the Discourse being thus separated from the Proofs, dwells only the Authority: which he that speaks attributes

tributes to himself. So that if he be eager and imperious, he alienates the minds of his auditors ; because it seems, as if he would carry by his Authority and a kind of Tyranny, what he ought to obtain by reason and perswasion.

This Injustice is much greater, when it makes use of these displeasing manners, to combat and overthrow opinions commonly receiv'd. For the reason of a particular person, may be preferr'd before that of several, when it is most in the right, but no private person ought to pretend his Authority to be more prevalent than the judgment of all others.

So that not only Modesty and Prudence, but Justice it self, obliges us to an humble and submissive Air of Reasoning, when we combat commonly received opinions, or a confirm'd Authority ; otherwise that Injustice can never be avoided of opposing private to public and universal Authority, or at least the chiefest and best establish'd. We cannot shew too much moderation ; when we go about to trouble the possession of a received opinion, or a belief that has been fix'd time out of mind ; which is so true, that *St. Austin* extends the same to the Verities of Religion ; having given this excellent Rule to all those that are oblig'd to instruct others.

See, saith he, *what method the Prudent and Pious Catholic Teachers take, in what they are bound to teach others. If they are things common and authorized, they propose 'em after a most assured manner, and which testifies nothing of doubt, yet with all the sweetness and mildness imaginable. But if they be*
things

things which are extraordinary, though they are such things which they clearly know to be true, yet they rather propose 'em as doubtful questions, and to be examined, then as Axioms and Maxims, that in this they may condescend to the infirmity of the Auditors. Or if it be a Truth so sublime, that is, above the reach of those to whom it is propounded, they rather chuse to suppress it for sometime, that their Hearers may have time to encrease their knowledge, and enlarge their capacities, than to discover it to 'em, in the height of their weakness, when it would but amaze and stupifie their understandings.

The End of the Third Part.

LOGIC

LOGIC:

OR, THE

ART

OF

THINKING.

PART IV.

Concerning METHOD.

IT remains for us to discourse, touching the Fourth part of Logic, which concerns Method, which without doubt is the most profitable and important part. We thought it requisite to insert into this part, that which relates to Demonstration; which does not usually consist in any one

one single Argument, but in a Series of several Syllogisms, by which we invincibly prove some certain Truth ; and for that it is of little use in Demonstration to know the rules of Syllogisms, wherein we seldom fail ; but the main business is for a Man to dispose his Thoughts in good order, making use of those which are most clear and evident, to penetrate into what seems most occult and conceal'd.

And because that Knowledge is the end of Demonstration, it will be necessary to speak something of it in the first place.

CHAP. I.

Of Knowledge, that there is such a thing, that the Knowledge of things by the Mind is more certain than what we know by our Senses, that there are some things which Mans Understanding is incapable of, The advantage of this necessary Ignorance

IF when we consider some certain Maxim, we understand the truth of it either by it self, or by such an Evidence as perswades us without any other Reason, this sort of Knowledge is call'd Understanding, and thus it is that we understand the first Principles.

On the other side, if it do not perswade us by it self, but that we have need of some other Arguments

over-rule us, whether it be Authority or Reason; If it be Authority, which causes us to imbrace what is proposed this is that which is called Faith; If it be Reason, then where this Reason does not produce an entire Conviction, but leaves some doubt still behind, this Acquiescency of the Mind accompanied with some sort of dissatisfaction is called Opinion.

But if Reason clearly convinces us, then where it is not clear, but only to outward appearance, and for want of attention, then the perswasion which it produces, proves an Error, if it be false in reality; or at least a false Judgment, if being true in it self, we have not reason sufficient to believe it true.

But if this Reason be not only apparent but solid and true, which is found out by a more diligent and exact attention, by a more firm Perswasion, and by the quality of perspicuity, which is more lively and more penetrating, then the Conviction which this Reason produces, is called Knowledg, about which many questions arise.

The first is, whether there be any such Knowledg, that is to say, whether we have any Knowledg grounded upon clear and certain Reasons; or in general, whether we have any clear and certain knowledg; for this question relates as well to Understanding as to Knowledg.

There are some Philosophers who make it their profession to deny this Knowledg, and who have builded the whole Structure of their Philosophy upon this Foundation. Of which Philosophers, some there

are who deny Certainty, admitting Probability, and these are the new *Academici*; the other sort, who are the *Pyrrhonians*, deny even Probability it self, pretending that all things are equally uncertain.

But the truth is, that all these opinions, that have made such a noise in the World, had never any subsistence but only in Discourses, Disputes and Writings, and that no Man was ever otherwise persuaded, but that they were only the Toys and Deliriums of ingenious persons that had nothing else to do, but never such Sentiments of, which they were entirely so satisfy'd as to walk and stand by those Maxims, as the Rules of Life. And therefore the best way to convince these Philosophers, is to cite 'em to the Tribunal of their Consciences, and sincere Honesty, and to ask 'em after all these discourses, by which they endeavour to shew that there is no difference between sleeping and waking, nor between Madness, and being in a Man's Sences, whether they do not verily believe at the same time, in despite of all their Reasons, that they are both awake, and in their Wits; and whether if they had but the least remainder of Ingenuity, they would not give the Lye to all these Vanities and Subtilties, and frankly confess that they could never believe these things, though they should make it never so much their endeavour.

But if there should be any person, who should doubt whether he were awake, or in his Sences, or could believe that the Existency of all exterior things is uncertain, and that he questions whether there

be

be a Sun, a Moon, or any such thing as Matter, yet no Man could ever doubt, as St. *Austin* affirms, whether he be, whether he think, or whether he live. For whether he be asleep or awake, whether in or out of his Wits, whether he be deceiv'd or not deceiv'd; it is certain at least, that while he thinks, he both *is* and *lives*, it being impossible to separate *Being* and *Life* from *Thought*, and to believe that he who thinks he neither is nor lives. So that from this clear, certain and unquestionable Knowledge, may be drawn a Rule, whereby to approve all those thoughts as true and clear, which appear to a Man like this.

It is impossible also to doubt of the Perceptions of the Senses by separating 'em from their Object. For whether there be a Sun or an Earth or no; certain it is that I imagin I see one. I am certain that I am in doubt while I doubt, that I believe I see, when I doubt whether I believe I see; and I believe I hear, when I question whether I believe I hear, and therefore not extending our thoughts beyond those things which are acted in the Mind it self, and considering what is only done there, we shall find there an Infinite number of Certainties of which it is Impossible to doubt.

Which Consideration may serve to decide another question which arises upon this Subject; which is, whether those things are only perceiv'd by the Mind, are more or less certain than those things which we understand by the Sences? for it is clear by what we have said, that we are more assured

of our Perceptions and *Ideas*, which we only know by the Reflexion of our Minds, then we are of all the objects of our Senses. We may also say, that tho' our Senses do not always deceive us in the report of things which they make us, yet that the assurance we have, that they do not deceive us, does not proceed from our Senses, but from a reflexion of the Mind, by which we discern when we ought, and when we ought not, to believe our Sences.

And therefore we must acknowledg that Sr. *Austin* after *Plato*, had reason to affirm, that the judgment of Truth, and the Rule to discern it belongs not to the Senses, but to the Mind. And that the assurance to be depended on from the Sences, is of no large extent, and that there are many things which we believe we know by the Sences, of which we cannot say, that we have any absolute certainty.

For example, we may know by the Sences that one Body is bigger than another ; but we cannot know certainly what is the true and natural bigness of every Body ; for the manifestation of which, we are only to consider, that if all the World had never look'd upon exterior objects, but with multiplying Glasses, certain it is, they would not have shap'd those Bodies and measures of Bodies otherwise than according to the Bigness represented by the Magnifying glasses. Now our Eyes are Magnifying-glasses, and whether we know not precisely, we diminish or enlarge the objects which we see. Or, whether the artificial Magnifying-Glasses, which we believe to augment

augment or diminish, do not rather represent the same things according to their true Magnitude. So that we do not certainly know the absolute and natural bigness of any Body.

Neither do we know whether we see things to be of the same bigness with other Men. For tho' two persons in measuring, agree together, that such a Body does not contain above five Foot, yet perhaps that which one Man means by one Foot, is not what another means by the same measure. For one conceives what is represented to him by his Eyes; and another conceives the same thing; yet it may be the Eyes of the one person do not represent the same thing which the other mans Eyes do; in regard their Eyes may be like Glasses variously ground.

However, there is great Probability, that this difference is not very great; because we do not see any difference in the forming of the Eye, able to produce a change so remarkable, for tho' our Eyes are Glasses, yet they are Glasses cut by the Hand of God; and so we have reason to believe, that they represent the truth of Objects; only that there are some defects which alter and deprave the natural Figure.

However it be, if the Judgment of the bigness of Objects be any way uncertain, so is it neither necessary, nor have we any reason to conclude that there is any more certainty in any other reports of the Sences. For if I do not know precisely what is the absolute and natural bigness of an Elephant,

however I know that an Elephant is bigger than a Horse, and less than a Whale, which is sufficient for common Understanding.

Therefore, there is both certainty and uncertainty, as well in the Mind as in the Sences, and it would be an equal mistake to look upon all things as certain, or all as things uncertain.

Reason on the contrary proposes three things to us to be observed.

For there are some things to be known clearly and certainly. There are other things, the truth of which we do not as yet clearly and evidently understand, but which we may hope to understand hereafter. And there are other things which it is impossible that we should understand with certainty; either because we are ignorant of the Principles that lead us to the Truth, or because they are above the reach of our Understandings.

The first sort comprehends all that we know by Demonstration, or Understanding.

The second is the continual exercise of Philosophical Study. But it may easily happen that they may lose their time, if they cannot distinguish this from the third sort, if they cannot discern those things to which the Mind may attain; from those other things which it is not capable to apprehend.

The most compendious way to the full extent of knowledg is not to toil our selves in the search of that which is above us, and which we can never rationally expect to comprehend. Such are those questions that relate to the Omnipotency of God, which

which it would be ridiculous to confine within the narrow Limits of our Understandings; and generally, as to whatever partakes of Infinity. For our Understanding being finite, loses it self in the Labyrinth of Infinity; and lies overwhelm'd under the multitude of thoughts, contradicting one another.

Hence may be drawn the most convenient and shortest solution of many questions, about which there will be no end of disputing, so long as Men are infected with the itch of dispute, in regard they can never be able to arrive at any certain knowledge, whereby to assure and fix the Understanding. Is it possible any creature should be created from Eternity? Is it possible for God to make a Body infinite in quantity, a movement infinite in swiftness, a multitude infinite in number? Is a number infinite even or odd? Is one infinite more extensive than another? He that should answer once for all, I know nothing of it, may be said to have made as fair a Progress in a moment, as he that had been beating his Brains twenty years, about these Niceties. The only difference between these Persons is, that he that drudges day and night about these Questions, is in the greatest danger of falling a degree lower than bare Ignorance; which is, to believe he knows that which he knows not at all.

There are also an infinite number of Metaphysical Questions, which being far remote and abstracted from Principles clearly known, can never be resolv'd. So that the surest way is, for a Man to rid himself of 'em the soonest he can; and after we have slight-

ly read what has been said of 'em , to resolve to unlearn 'em again.

Nescire quadam magna pars sapientie.

By which means, ridding our selves of vain and useless scrutinies, we shall be the more able to make a fairer progress in such things as are more proportionable to our understandings.

Moreover, we are to understand, that there are some things which are incomprehensible in their manner, yet certain in their existency, we cannot comprehend how they are, however it is certain, they are.

What is more incomprehensible than Eternity ? and yet at the same time what is more certain ? Inso-much that they , who through a detestable blindness, have defaced in their minds the knowledge of God, are constrain'd to attribute it to the vilest and most contemptible of *Beings*, which is *Matter*.

How can we comprehend, that the smallest Atom of Matter is divisible to Infinity , and that we can never come to so small a part, that does not only enclose several others, but also an infinity of other parts. That a small grain of Wheat encloses in it self as many parts, though lesser in proportion as the whole world ? That all imaginable figures are actually there to be found, and that it contains a little world in it self with all its parts, a Sun, a Heaven, Stars, Planets and an Earth , in a most admirable correspondency of Proportion ? What can that

that part of this little World be, which answers to the bigness of a grain of Wheat; and what a stupendous exiguity must that be, of which we may truly say, that it is such in respect of a grain of Wheat, as a grain of Wheat is compar'd with the whole World: Nevertheless this part which is so incomprehensible to us, contains another proportionable World, and so *ad infinitum*; there being still no part which does not comprehend as many proportional parts as the World, how large soever we make it.

These things are above Conception; yet necessarily they must be so, because the divisibility of Matter is demonstrable, as appears by the proofs which *Geometry* furnishes us with, as clear as any which she produces.

For this Science shews us, that there are some lines which have no common Measure, which for that reason are call'd Incommensurable, as the Diagonal and sides of a Square. Now if this Diagonal and sides were compos'd of a certain number of divisible Parts, one of these parts would be the common measure of those Lines; and by consequence it would be impossible that those two Lines should be compos'd of Indivisible parts.

Secondly, The same Science teaches us, that it is impossible that a square Number should be double another square Number, and yet 'tis possible for an extended Square to be double to another extended Square. Now if these two Squares were compos'd of a certain number of Finite parts, the great Square

would contain double as many parts as the less, and both being square, there would be a square Number double to another square Number, which is impossible.

Lastly, there is nothing more clear than that two ~~Things~~ of an Extent can form an Extent ; and that every Extent has parts. Now taking two of these parts which are suppos'd to be indivisible, I demand whether they have Extent or no ? If they have, then they are divisible and have parts ; if they have not, then they are Nothings of an Extent , and so it is impossible they can form an Extent.

We must renounce all Human Assurance, to doubt of the verity of these Demonstrations : But for the better apprehending this infinite Divisibility of Matter, I will add one more proof, which shews us at the same time a Division into Infinite , and a motion that slackens to Infinite, yet never ends in rest.

Certain it is, that though it may be doubted, whether Extent may be divided to Infinity, it is unquestionable that it may be enlarg'd to Infinity ; and that to a Plain of a Hundred Thousand Leagues, may be added another Plain of a Hundred Thousand Leagues, and so *ad infinitum*. Now this Infinite Augmentation of Extent proves its Infinite Divisibility. For proof of which , there needs no more than to suppose a plain Sea, which is augmented to Infinity, together with a Ship continually sailing from some part of that Sea, in a direct Line. Certain it is, that the Radius that shall come from

the Bottom of the Ship, to the Eye of the Person looking from the Port, through a Glass or Transparent Body shall pass through a certain point of the Glass, and the Horizontal Radius shall pass through another somewhat more Elevated. Now as the Vessel makes Sail, the point of the Radius that terminates at the bottom of the Ship, shall always mount, and infinitely divide the space between the two points, and the farther the Vessel moves off, the higher it will slowly ascend, without ever ceasing to ascend, or ever being able to touch the Point of the Horizontal Radius, because those two Lines intersecting each other in the Eye, can never be Parallel nor the same Line.

Which Example, at the same time, affords us an Infinite Divisibility of an Extent, and a slackning of motion to Infinity.

By this Infinite Diminution of Extent, which arises from its Divisibility may be prov'd these Problems that seem impossible in their Terms. To find an Infinite Space equal to a Finite; or which is no more than the half or the third part of a Finite space. Of which among many others, here is one, very easie, though not so polite. Take the half of a Square, and the half of that Square, and so *ad Infinitum*, and joyn all these halves by their longest Line; the Consequence will be a Superficies of an irregular Figure, and which will diminish *ad infinitum*, at one of the ends, but which will be equal to the whole Square. For the half and the half of the half, the half of the second half, and so *ad infinitum*, make

the whole. The third, and the third of the third, and the third of the new third, and so *ad infinitum*, make the half. The fourth's taken after the same manner make the third part, and the fifth part is the fourth ; which joyning together at the ends, will produce a Figure containing a half, or a third part of the *Area* of the whole, and which on the one side shall be infinite in length, diminishing proportionably in breadth.

The advantage that may be made of these Speculations is not only the bare knowledge of these things, which is barren enough ; but to teach us the limits of our understandings, and to make us acknowledge inspite of our selves, that there are certain things that are, which we are not capable to apprehend. And therefore it is profitable in some measure to take pains about these niceties, were it only to tame our presumption, in opposing our feeble apprehensions against the Truths which the Church proposes, under pretence that we cannot apprehend 'em.

For seeing, that the force and vigor of human wit is forc'd to succumb to the least Atom of matter, and to confess, that he clearly sees, that it is divisible into Infinity, not apprehending how it can be done ; is it not visibly a sin against Reason, to refuse to believe the visible Effects of God's Omnipotency, which is of it self incomprehensible ; and only because it is above our Apprehension ?

But as it is sometimes profitable for a Man to make himself sometimes sensible of the weakness of

of his own Understanding, by the consideration of those Objects which are above it, it is no less certain, that he ought to make choice of Subjects and Matters, for his more general study, which are within the reach of his Capacity, the truth of which he may be able to find out and comprehend, whether, by proving the Effects by the Causes, or *a Priori*; or by demonstrating the Causes by the Effects, which is call'd Demonstration *a Posteriors*. Nevertheless, the signification of these Terms must be dilated, to the end, that under them all sorts of Demonstrations may be reduc'd; though here it may suffice to give a hint of them by the by, that they be understood and not seem uncouth to us, when we meet with them in the Writings and Discourses of Philosophy; and for that, Arguments of this Nature being compos'd of several parts; it is requisite, for the rendering them more clear and concluding, to dispose them in a certain Order and Method. Of which Method it is, that we shall discourse in the chiefest part of this Book.

CHAP. II.

Of the two sorts of Method, Analysis and Synthesis. An Example of Analysis.

Method may be generally call'd, *The Art of well disposing a series of several Thoughts, either to discover the Truth of which we are ignorant, or to prove others of which we know the truth already.*

Thus

Thus there are two sorts of Methods ; the one to discover the Truth, which is call'd *Analysis*, or the *Method of Unfolding*, and which may be also called the *Method of Invention* : And the other to make it understood by others when it is found out, which is call'd *Synthesis*, or the *Method of Composition*, and may be also call'd the *Method of Doctrine*.

The entire Body of any Science is rarely handled *Analitically*, *Analysis* being only made use of to

* The greatest part of what is here discoursed concerning Questions, was taken from a Manuscript of the Deceas'd *D'escartes*, which Monsieur *Glanchetier* did me the favour to lend me.

resolve some * Question.

Now all Questions are either about words or things.

I call in this place Questions about words, not those that hunt after words, whereby things may be signify'd, but which search for things signify'd out of the words themselves : As when we endeavour to find out the meaning of a Riddle ; or what an Author means by obscure or ambiguous words.

Questions about things may be reduced under four several sorts. The first, when we seek for the causes by the effects. For example, we know the various effects of the Loadstone, and by their assistance search for the cause. We know the various effects which are usually attributed to the abhorrency of *Vacuum* : We search whether that be the true cause, and we find it is not. We know the Sea ebbs and flows ; and we seek for the true cause of so regular a motion.

The

The second is, when we seek to find out the Effects by the Causes. For example, we find that Wind and Water have a great force to move Bodies. But the Ancients not having sufficiently examined what might be the effects of those causes, never made use of 'em, for many inventions afterwards found out to the great benefit of Mankind, and the great ease of human Labour, which ought to have been the true Fruit of Physical Study. So that it may be said, the first sort of Questions, whereby we seek the Causes by the Effects, include the speculative part of Physics, and the second part that seeks for the Effects by the Causes, contains the Practical part.

The third sort of Questions, is when we seek for the knowledg of the whole by the parts. As when we have many Numbers, we seek for the Sum by Addition or Multiplication.

The Fourth is, when having the whole and some part, we seek for the other part: As when we know a certain number, and what is subtracted from it, we seek to find what remains; or as when we seek to know what will be the *so much*, of a given number.

But here it is to be observ'd, that for the farther extention of these two sorts of Questions; and that they may comprehend what cannot be properly refer'd to the former, the word part is to be taken more generally for all that comprehends a thing, its *Manners*, its *Extremities*, its *Accidents*, its *Proprieties*, and generally all its *Attributes*. So that he
may

may be said to seek the whole by its parts, who seeks to find out the *Area* of a Triangle by its height and Basis: And he may be said to seek a part by the whole and another part, who seeks to find out the side of a Rectangle, by the knowledge which he has of the *Area*, and one of the sides.

Now whatever be the nature of the Question propos'd, the first thing is to conceive clearly and distinctly, what is the precise point of the Question.

For the Error of many is to be avoided, who out of heat and precipitancy, are ready with their answers, before they rightly understand, by the Circumstances and other marks, what is propounded. Like a Servant, that being commanded to go for one of his acquaintance, runs away in haste before he knew particularly from his Master, who that Friend is.

Now in regard there is in all questions something unknown, which else would never be to seek, nevertheless, that which is unknown must be mark'd out, and design'd by certain conditions, which limit us to search out one thing rather than another, and cause us to understand when we have found it out, that it is the thing which we seek after.

And these Conditions we are well to consider before hand, with great care, lest we add any other than what is enclos'd within the thing propounded, and of omitting any thing which is therein included: For both ways a Man may commit a manifest Error.

As for Example, in the first manner, if it should be demanded of us, what Creature that goes upon four Feet in the Morning, upon two at Noon, and three in the Evening, we should err to think our selves bound to take these words, *Feet, Morning, Noon, Evening* in their proper and genuine signification: For the Propounder of the *Enigma* requires no such condition: And therefore it is sufficient that they may be apply'd by a Metaphor to some other thing: And so the Riddle will be well resolv'd, by saying that same Creature is a Man.

Let us suppose the Question to be, how the Statue of *Tantalus* could be made lying upon a Column in the midst of a *Vase*, in the posture of a Man stooping down to drink, but could not do it, because the water in the *Vase*, might ascend up to his Mouth; but sank down again so soon as it began to touch his Lips. We should err in adding such Questions that would be of no use to the solution of the Question, and trouble our brains to find out some wonderful secret in the Statue of a *Tantalus*, that caus'd the Water to sink down so soon as it approach'd his Lips. For nothing of that is included in the question. For if it be rightly conceiv'd, it may be sufficient that we imagine a Vessel made to contain Water to such a height, and which empties again, if it be fill'd above such a mark; which is easie to be done, by concealing a private Pipe in the Column, of which one Branch admits the Water into the *Vase*, the other which is longer, hangs down below the bottom of the *Vase*. For the Water

ter pour'd into the Vase will stay till it come to the top of the Syphon or Pipe, but being filled up to the top of the Pipe, away it flies again through the longer branch of the Pipe that hangs down below the Vase.

The Question also may be put what secret the same water Drinker had, who shew'd his tricks at Paris about twenty years since; and how by vomiting only water out of his Mouth, he could fill at the same time five or six several Glasses with water of different Colours. If any one believe, that the waters of different colours were in his Stomach, and that he made a separation there, as he threw 'em up into the several Glasses, that Person will hardly after a secret never to be found; because it is an impossibility. And therefore he is only to ask why the water coming out of one and the same Mouth, one and the same time, appear'd to be of diverse Colours in every one of the Glasses; which is very probable, was occasioned by some Tincture which the Mountebank put at the bottom of the Glasses.

'Tis the cunning also of those that propound Questions, which they would not have easily resolv'd, to environ and cloud the thing which is to be resolv'd with so many frivolous conditions, which serve nothing to the solution of the question, but purpose to prevent the discovery of the true point of the thing propounded; and so we lose time and beat our brains to no purpose, about things that contribute nothing to the discovery of the thing commanded to be resolv'd.

The other manner of erring in the examination of the marks and circumstances of the thing which we search for, is when we omit what is most essential to the question propounded. For example, we propose to find out the perpetual motion by Art. For we know well that there are perpetual motions in nature, as those of Fountains, Rivers and Stars. There are some, who believing the Earth turns upon its Centre, which is nothing but a great Load-stone, of which the common Adamant has all the properties, believe also that an Adamant may be so ordered, as always to turn about Circularly. Which though they could bring to pass, yet would it nothing contribute to find out the perpetual motion by Art; in regard that other motion would be as natural, as that of a Wheel expos'd to the current of a River.

Therefore when we have well examined the Circumstances, that mark out what is unknown in the question, we are next to examin what is known; for thereby we shall come to the knowledg of what is unknown. For we are not to imagine that we are to find out new *Genius's* of things, in regard our minds are no farther capable to find out things unknown, then as they participate after such or such a manner, with the nature of things which we know. For example, if a Man were blind from his birth, we should kill our selves in vain, to seek out Arguments and Proofs, to make him sensible of the true Ideas of Colours, such as we have by means of our Sences. Also if the Loadstone, and those other Bodies,

Bodies, whose nature we are inquisitive to find out, were new *Genus's* of *Beings*, and such that our understandings could not conceive the like, we might despair for ever to attain to the knowledge of them by Reasons or Arguments, but we should stand in need of another understanding than our own. And therefore we are to believe that we have found out all that can be found by Human Invention; and we conceive distinctly, that such a mixture of *Things* and *Natures*, which are known to us, could produce those effects which are known to us in the *Lodestone*.

Now it is chiefly in our Attention to what is known to us in the question which we should resolve, that the *Analysis* consists: it being our main business to draw from that Examination many Truths that may lead us to the knowledge of what we seek.

As if the Question were, *whether the Soul be Immortal*, and to find it out, we apply our selves to consider the nature of our Soul; we observe in the first place, that it is the propriety of the Soul to think, and that it may doubt of all things else, without doubting whether it think or no, in regard to the doubt it self is a thought. After this we examine what it is to think; and not finding in the *Idea* of Thought, that there is any thing included in the *Idea* of extended Substance, which is call'd a *Body*, and that we may deny of Thought whatever belongs to a Body, as to be *long, broad, deep, to have diversity of Parts, to be of such or such a figure, to be*

divisible

divisible, &c. without destroying the *Idea* which we have of Thought; we conclude that Thought is no manner of *extended Substance*; because it is of the nature of a *manner* that cannot be conceiv'd, if the thing be deny'd of it whose *mode* it is. Whence we infer, that Thought being no *Manner* of extended substance, it must be the Attribute of some other substance; and so the Substance that thinks, and the extended Substance, must be two Substances really distinct. Whence it follows that the destruction of the one does no way argue the destruction of the other, since the extended Substance is not properly destroy'd, but that all that happens in that which we call destruction is nothing else but a change or dissolution of some parts of the matter which remains always in Nature, as we rightly judge, that in breaking the Wheels of a Clock, the Substance of the Clock is not destroy'd, though we say, the Clock is destroy'd. Which shews, that the Soul not being divisible or compos'd of many parts, cannot perish, and by consequence is immortal.

This is that which is call'd *Analysis*, or an *unfolding*, where you are to observe, 1. That we ought to take our progress, as in the method of Composition, from that which is most known, to that which is least known. For there is no true method that can dispense with this Rule.

2. That it differs from the method of Composition in this, that we consider these known Truths in the particular examination of the thing which we

we propose to understand, and not in things more general, as in the method of Doctrine. Thus in the foregoing example, we do not begin with the general Maxims, that no Substance, to speak properly, perishes; That what we call destruction is only a dissolution of the parts; That whatsoever has no parts cannot be destroy'd: but we mount up by degrees to those general Rules.

That we never propose clear and evident Maxims, but as we have occasion to make use of 'em; whereas in *Synthesis* we produce those first, as we shall shew hereafter.

4. That these two Methods differ only, as the way that leads from a Valley to a Mountain, differs from that which leads from the top of the Mountain to a Valley: Or as the two manners differ, to prove that such a Person is descended from St. Lewis, of which the one way is to shew, that such a Person had such an one to his Father, who was the Son of such an one, and he the Son of such an one, and so down to St. Lewis. The other to begin from St. Lewis, and to shew that he had such Children, those Children others, till they come to the last descent, who is the Person intended. And this Example is the more proper at this time, because it is the most certain way to find out an obscure Pedigree, by ascending from the Son to the Father; whereas for the instruction of others that it is already found, the most usual way is to begin from the stock, the more easily to demonstrate who they were that descended from it. Which is usually
observed

observed in the Sciences, where after we have
 made use of *Analysis* to find out some truth, we ap-
 ply our selves to the other method, to explain what
 we have found out.

By this we may understand what is the *Analysis* of
 the Geometricians, which consists in this. A Question
 being propounded to them, which they know not
 whether it be true or false. As whether it be a *Theo-*
rem? or if a *Theorem*, the possibility or impossibility of
 it. They suppose it to be, as it is propos'd, and exami-
 ning what will follow from thence, if upon that ex-
 amination they light upon evident Truth, of which
 that which is propos'd is a necessary consequence,
 they conclude from thence, that the thing proposed
 is True: Then beginning again where they left off,
 they demonstrate it by the Method of *Composition*. But
 if through necessary Inferences, they fall into ab-
 surdity and impossibility, they conclude the thing
 propos'd to be absurd and impossible.

This is what can be generally said of *Analysis*,
 which consists more in judgment and dexterity of wit
 than in particular Rules. Nevertheless these four
 which Monsieur *Des'Cartes* propos'd in his method
 may be beneficial for a Man to guard himself from
 erring in the search of Truth, relating to human
 Sciences, though indeed they may be generally ap-
 ply'd to all sorts of Methods, and not particularly
 only to *Analysis*.

I. Never to receive any thing for Truth, which is
 not known to be evidently such, that is, carefully to a-
 void precipitation and prejudice; and not to comprehend

any thing more in a Man's Judgment, than what presents it self clearly to the understanding, and which is altogether and absolutely unquestionable.

2. To divide the Difficulties that are under Examination, into as many parts and parcels as he can, and are requisite for their solution.

3. To govern his thoughts by order, beginning from objects the most plain and easie to know, that he may be able to soar by degrees, to the knowledge of things more difficult and compounded; and supposing a certain order among those things which do not naturally precede one another.

4. To number his Mediums, and make his reviews so exactly, that he may be assur'd of not having omitted the least Particle.

True it is, that it is a very difficult thing to observe these Rules; but it is always necessary to bear them in mind, and to observe them with all the exactness that lies in a Man's power, when he would find out Truth by the way of Reason, and as far as our understanding is capable to reach.

CHAP.

CHAP. III.

Of the Method of Composition, and particularly that which is observ'd by the Geometricians.

WHat we have said in the foregoing Chapter, has already given us some *Idea* of the Method of Composition, which is the most important, as being that which we make use of in the Explanation of the Sciences.

This Method consists principally in beginning from Things the most plain and general, and ascending to the less general and more compounded: By this means we shun ungrateful Repetitions; for should we be to treat of *Species's* before *Genus's*, since it is impossible to understand the *Species* rightly before we understand the *Genus*, there would be a necessity of several times explaining the nature of *Genus* in the explanation of every *Species*.

There are many things also to be observ'd, to render this method perfect and proper for obtaining the propos'd end, which is to give us a clear and distinct Knowledge of the Truth. But because the general Precepts are more difficult to understand, when they are abstracted from all manner of matter, we will consider the Method of the *Geometricians*, as being that which we have always thought most proper to convince us of the Truth. And first we shall

T

shew

shew what is to be commended in this Method, and secondly what it has defective.

It being the chief aim of the *Geometricians* to advance nothing but what is truly convincing, they might attain their ends by observing three things in general.

1. *Not to suffer any Ambiguity in their Terms*, against which they have provided by definitions of words.

2. *Not to ground their Arguments but upon clear and evident Principles*; and which can never be question'd by any Person of understanding; which is the reason, that they lay down their Axioms which they require, should be granted them, as being so clear, that they would be but obscur'd, by going about to prove them.

3. *To prove demonstratively all these Conclusions*, by the help of settled Definitions, Principles granted them, as being most Evident, and Propositions which they have already drawn by the force of Reason, insomuch, that after that they become Principles.

So that we may reduce to these three Heads, whatever the *Geometricians* observe to convince the Understanding, and include the whole in these five Rules of great Importance.

Rules necessary for Definitions.

1. *Not to leave any thing in the Terms obscure, or Equivocal without defining it.*

2. To make use of none but Terms perfectly known, or already explain'd.

For AXIOMS:

3. To propound no Axioms but what is most clear and evident.

For DEMONSTRATIONS.

4. To prove all Propositions any thing obscure, by the help of proceeding Propositions or Axioms conceded, Propositions Demonstrated, or lastly by the Construction of the thing in question, when there is any Operation to be shewn.

5. Never to make use of the Ambiguity of Terms, by failing mentally to explain those Definitions that restrain and explain it.

These are the Rules which the Geometricians have thought necessary to render their Probations convincing and invincible. And we must confess, that a diligent observation of these Rules is sufficient to avoid the making of false Arguments, while we treat of the Sciences. Which without doubt is the principal thing ; when all the rest may be said to be rather profitable than necessary.

CH A P. IV.

A more particular Explication of the foregoing Rules, and first of those that relate to Definitions.

THO we have declar'd in the first part the benefit of the Definition of Terms, nevertheless it is of that Importance, that we cannot bear it too often in remembrance, in regard that thereby we unravel a great number of questions ; which are very difficult, by reason of the Ambiguity of their Terms, which some take in one Sence, some in another. In-somuch, that very great contests would cease in a Moment, if either of the Disputants did but take care to define clearly and in few words what he means by the Terms which are the Subject of the Dispute.

Cicero has observ'd that the greatest part of the disputes between the ancient Philosophers, especially the *Stoics* and *Academics* were founded only upon this Ambiguity of Words ; while the *Stoics* to exalt themselves, took the Terms of Morality in Senses quite different from others. Which made Men believe that their Morals were much more severe and more perfect : tho' indeed that pretended Perfection was only in Words, and not in Things, the Tigest of the *Stoicks* no less indulging himself to the pleasures of this Life, than the Philosophers of other Sects, that were more Latitudinary and remiss. Nor did

did they with less care avoid the Evil and Inconveniences of Life, only with this difference, that whereas other Philosophers made use of the ordinary words Good and Evil, the *Stoics* call'd the pleasures which they enjoy'd, *things to be prefer'd*; and the Evils which they shun'd, *things to be avoided*.

And therefore it is absolutely requisite to retrench from all disputes, whatever is founded upon the Equivocations of Words, by defining them by other words so clearly understood, that there can be no fault found, or exception taken.

To which purpose serves the first of the foregoing Rules, *to leave nothing in the Terms obscure or Equivocal without defining it*. But that we may be able to make the best of these Definitions, we are to add the second Rule, *To make use of none but Terms perfectly known or already explain'd*; that is to say, terms that design as clearly as may be, the *Idea* which we mean by the Word that we define.

For so long as we have not clearly and distinctly enough set forth the *Idea* to which we would affix to the Word, it is almost impossible to avoid sliding into another *Idea* different from that we have design'd; that is to say, but that instead of substituting mentally, every time we make use of the Word, the same *Idea* design'd, we substitute another with which Nature furnishes us. Which is easily discovered by substituting the Definition in the place of the thing defin'd. For then there is nothing ought to be chang'd in the Proposition, if there has been a Constancy to the *Idea*; whereas otherwise there will be an apparent Change.

This will be better understood by Examples: *Euclid* defines a plane Rectilineal Angle, *the meeting of two right Lines inclin'd upon the same Plane.* If we consider this Definition, as a bare Definition of the word, so that we are to look upon the word Angle, as being dispoil'd of all Signification, but that of the *meeting of two Lines*, we have no Reason to blame *Euclid.* For it is lawful for *Euclid* to signifie by the word Angle the meeting of two Lines. But he is bound to remember himself, and not to use the word Angle but only in that Sence. Now to try whether he has done it, every time that he speaks of an *Angle*, we are to substitute to the word Angle, the Definition which he has given of it, and if in comparing the Definition, there be found any absurdity in what he says concerning an Angle; it will follow that he has not been constant to the same *Idea* which he had design'd, but that he is insensibly fallen into another, which is that of Nature. For Example, he teaches us to divide an Angle in two. Compare his Definition, and you shall find that it is not the meeting of two Lines that he would have us divide in two, that it is not the meeting of two Lines that has two sides and a Base; but that all this agrees with the Space comprehended between two Lines.

It is visible therefore, that that which puzzl'd *Euclid*, and hindered him from defining an Angle to be a space comprehended between two Lines that meet, was this, that he found that space might be larger or less, as the sides of the Angle were longer or shorter

shorter, and yet the Angle not be less or bigger. Nevertheless he ought not to have concluded from hence, that an Angle was not a space, but only that it was a space comprehended between two right Lines that meet indetermin'd in respect of one of the two Dimensions that answer to the length of the Lines, and determin'd according to the other, by the proportional part of a Circumference, which has for its Center, the point where the Lines meet.

The Definition defines so clearly the *Idea* which all Men have of an Angle, that it is both a Definition of the word, and of the thing; only that the word Angle comprehends in common discourse a solid Angle, whereas by this Definition it is restrain'd to signify a Plane Rectilinal Angle.

And when we have thus defin'd the *Angle*, it is unquestionable that whatever afterwards can be said of a Plane Rectilineal Angle, such as is found in all Rectilineal Figures, shall be true of this Angle thus defin'd, without being oblig'd to change the *Idea*; nor will any absurdity follow by substituting the Definition in the place of the thing defin'd. For it is the space thus explain'd, that cannot be divided into two, three or four. This is that space which has two sides between which it is comprehended; and which on that part which is indetermin'd of in it self, may be determin'd by a Line which is called the Base, or *Hypothesis*. Nor is it accounted greater or less, as being comprehended between longer or shorter Lines, for the measure of great or less is not to be taken from the part

which is undetermin'd according to its Dimension. By this Definition we find out the way to judg whether one Angle be equal to another, whether bigger or less. For the bigness of this space being only determin'd by the proportional part of a Circumference, which has for its Center the Point where the Lines that comprehend the Angle meet, when the two Angles are measur'd by equal parts of its Circumference, as the tenth part, they are equal: if one by the tenth, the other by the twelfth; that which is measur'd by the tenth, is bigger than that which is measur'd by the twelfth; whereas by *Euclid's* Definition, we should never understand wherein consists the equality of two Angles. Which causes a horrible Confusion in his Elements, as *Ramus* has observ'd, tho he himself no less unfortunate in his Rectifications.

Behold another of *Euclid's* Definitions, where he commits the same fault, as in that of the Angle. *Reason*, says he, is a habitude of two Magnitudes of the same kind, compar'd one with another according to quantity. *Proportion* is a Similitude of Reasons.

By these Definitions the word *Reason* should comprehend the Habitue which is between the two Magnitudes, when we consider how much the one exceeds the other. For we cannot deny but that this habitude is a habitude of two Grandeurs, compar'd according to quantity. And by Consequence four Magnitudes will be proportionable one to another, while the difference between the first and second is equal to the difference between the third and fourth.

fourth. So that there is nothing to be said to these Definitions of *Euclid*, provided he continue constant to those *Ideas* which he has design'd by these words, and which he has given to the words of *Reason* and *Proportion*. But he is not constant, for that according to the whole series of his Book, these four Numbers, 3. 5. 8. 10. are not proportionable, tho the Definition which he has given to the word *Proportion* agrees with 'em. For that there is between the first number and the second compar'd together according to quantity, a habitude like to that between the third and the fourth.

Now that he might avoid falling into this Inconvenience he should have observ'd, that there are two ways of comparing two Magnitudes; one by considering how far the one surpasses the other, and the second, by considering after what manner the one is contain'd in the other. And in regard these two habitudes are different, he ought to have given 'em different Names, to the first the name of *Difference*, to the second the name of *Reason*. Afterwards he ought to have defin'd *Proportion*, the Equality of the one or the other of these two sorts of Habitudes, that is, of *Difference* or *Reason*. And as this makes two *Species's*, to have distinguish'd 'em also by two several names, calling the Equality of *Difference*, *Arithmetical Proportion*, and equality of *Reason*, *Proportion Geometrical*. And because the latter is much more beneficial than the former, the Readers are to be admonish'd, that when *Proportion* or *Proportional Magnitudes* are barely nam'd, it is to

be understood of *Geometrical Propotion* ; but for *Arithmetical Propotion*, it is never to be understood, but when it is express'd. Which would have un-veil'd all obscurity, and taken away all *Equivocation*.

This shews us that we are not to make an ill use of that Maxim, That the Definitions of words are Arbitrary. But that great heed is to be taken to design so clearly and exactly the *Idea* to which we affix the word, that is to be defin'd, that we may not be deceiv'd in the Series of the Discourse ; by taking the word in another Sence then that which is given it by the Definition ; so that we may always substitute the Definition to the thing defin'd without falling into Absurdity.

CHAP. V.

That the Geometricians seem not to have rightly understood the difference between the Definitions of words and things.

ALthough there are not any Writers, who make a better use of the Definitions of Words, than the *Geometricians* ; yet I cannot but observe, that they have not rightly understood the difference between the Definitions of *words* and *things* ; which is, that the first are disputable, the second not to be controverted : For I find some that raise Disputes about the

the Definitions of words with the same heat, as if they were disputing about the things themselves.

Thus we find in the *Commentaries* of *Clavius* upon *Euclid*, a long dispute and mighty hot, between *Pelletier* and Him, touching the space between the Tangent and the Circumference, which *Clavius* denies, *Pelletier* affirms to be an Angle. Who does not see, that all this might be determin'd in one word, by demanding of Both, what they meant by the word *Angle*?

We find also the Famous *Simon Stevin*, Mathematician to the Prince of Orange, having defin'd Number to be, *That by which is explain'd the quantity of every Thing*, he puts himself into such a peltting Chafe against those that will not have the *Unite* to be a Number, as to exclaim against Rhetoric, as if he were upon some solid Argument. True it is that he intermixes in his Discourses a question of some Importance, that is, whether a *Unite* be to Number, as a Point is to a Line. But here he should have made a distinction, to avoid the jumbling together of two different things. To which end these two questions were to have been treated apart; whether a *Unite* be Number, and whether a *Unite* be to Number, as a Point is to a Line; and then to the first he should have said, that it was only a Dispute about a Word, and that an *Unite* was, or was not a Number, according to the Definition, which a Man would give to Number. That according to *Euclid's* Definition of Number; *Number is a Multitude of Unites assembled together*; it was visible, that

a *Unite*

a *Unite* was no Number. But in regard this Definition of *Euclid* was arbitrary, and that it was lawful to give another Definition of Number, Number might be defin'd as *Steven* defines it, according to which Definition a *Unite* is a Number ; so that by what has been said, the *first question* is resolv'd, and there is nothing farther to be alledged against those that denied the *Unite* to be a Number, without a manifest begging of the question, as we may see by examining the pretended Demonstrations of *Steven*. The first is,

*The Part is of the same Nature with the whole,
The Unite is a Part of a Multitude of Unites,
Therefore the Unite is of the same Nature with a
Multitude of Unites, and consequently of Number.*

This Argument is of no validity. For tho the part were always of the same nature with the whole, it does not follow that it ought to have always the same name with the whole; nay it often falls out, that it has not the same name. A Soldier is part of an Army, and yet is no Army; a Chamber is part of a House, and yet no House; a Half-Circle is no Circle; a Part of a Square is no Square. This Argument therefore proves no more, than that *Unite* being part of a Multitude of Unites, has something common with a Multitude of Unites, and so it may be said to have something common with 'em; but it does not prove any necessity of giving the same name of Number to *Unite*, as to a Number of Unites : Because if we would we could not reserve the name of Number to a multitude

tude of Unites, nor give to Unite more then its name of Unite, or part of Number.

The Secoud Argument which *Steven* produces is of no more force.

If from a Number given we subtract any Number, the Number given remains.

If then the Unite were not a Number, Subtracting one out of three, the Number given would remain, which is absurd.

But here the *major* is ridiculous, and supposes the Thing in Question. For *Euclid* will deny that the Number given remains after subtraction of another Number. For to make it another Number then what was given, there needs no more then to subtract a Number from it, or a part of a Number, which is the Unite. Besides, if this Argument were good, we might prove in the same manner, that by taking a half Circle from a Circle given, the Circle given would remain, because no Circle is taken away.

So that all *Steven's* Arguments prove no more, then that Number may be defin'd in such a manner, that the word Number may agree with Unity, because that Unite and multitude of Unites accord so well together, as to be signify'd by the same word, yet they no way prove that number can be no way defin'd, by restraining the word to the Multitude of Unites, that we may not be oblig'd to except the Unite, every time we explain the properties that belong to all numbers, except the Unite.

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But the second Question, *Whether an Unite be to Numbers, as a point is to a Line*, is a dispute concerning the thing? For it is absolutely false, that an Unite is to number as a point is to a Line. Since an Unite added to number makes it bigger, but a Line is not made bigger by the addition of a point. The Unite is a part of Number, but a Point is no part of a Line. An Unite being subtracted from a Number, the Number given does not remain; but a point being taken from a Line, the Line given remains.

Thus doth *Stevin* frequently wrangle about the Definition of words, as when he chafes himself to prove that Number is not a quantity discreet, that Proposition of Number is always Arithmetical, and not Geometrical, That the Root of what Number soever, is a Number, which shews us, that he did not properly understand the definition of words, and that he mistook the definition of words, which were disputable for the definition of things that were beyond all Controversie.

CH A P. VI.

Of the Rules in Reference to Axioms.

ALL Men agree, that there are some Propositions so clear and evident of themselves, that they have no need of being demonstrated; and that

that all that are not demonstrated, ought to be such, that they may become the Principle of true Demonstration. For if they be fully'd with the least uncertainty, it is clear, that they cannot be the ground of a conclusion altogether certain.

But there are some who do not apprehend wherein this clearness and evidence of a Proposition consists. For it is not to be imagin'd, that a Proposition is then clear and certain, when no body contradicts it: Or that it ought to be question'd, or at least that we should be oblig'd to prove it; when we meet with any one that denies it. For if that were so, there would be nothing clear and certain, in regard there are a sort of Philosophers that question every thing; and others, who assert that there is no proposition more probable than its contrary. And therefore we must not judge of certainty or truth by the contest among men. For there is nothing about which we may not contend, especially in words: But we are to take that for clear and certain, which appears to be so to all those, who will take the pains diligently to consider things, and no less sincere and ingenious to discover what inwardly they think of 'em. And therefore it is a great saying of *Aristotle*, that Demonstration relates more to the inward Eviction of the mind, than to the forcing of an outward belief. For that there is nothing which can be so evidently demonstrated, which may not be deny'd by a Person truly opined; who many times engages himself in disputes about things, of which he is inwardly perswaded to
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the contrary. Which is a sign of froward Disposition, and an ill contriv'd Genius : Though it be too true, that this humour is frequently predominant in the Schools of Philosophy, wherein custom of brangling has prevail'd and it is thought dishonourable to submit in the least ; he being accounted to have most wit, who is most ready at shifts and evasions. Where it is the Character of an ingenious Man to yeild his Arms to truth, as soon as she comes to be perceiv'd, and to admire her even in the Mouth of his Adversary.

Secondly, all Philosophers, who affirm that our Ideas proceed from our senses, maintain also, that all certainty and evidence of Propositions, proceed either immediately or mediately from the senses. For, say they, *this Axiom, then which there can be no nothing desir'd more clear and evident; The whole is greater then a part, has gain'd no belief in our understandings, but only because we have particularly observ'd from our Infancy, that every Man is bigger then his Head, that a House is bigger then a Chamber, a Forrest then a Tree, and the whole Heaven then a Star.*

This Imagination is as false as that which we have refuted in the first part, *That all our Ideas proceed from our Sences.* For if we were not assur'd of this Truth, *That the Whole is bigger then a Part,* but by our observations from our Infancy, in regard Induction is no certain means to know a thing, but when we are assur'd the Induction is entire. There being nothing more frequent, then to discover the
falsity

falsity of what we have believ'd upon the credit of Inductions, which seem'd to us so general, that it was thought impossible to make any exceptions against 'em.

Thus it is not above two or three years since, that it was thought a thing not to be question'd, that the Water contain'd in an Arch'd Vessel, having one side much more capacious then the other, kept always at an even level, not rising higher on the greater side then on the lesser, because we seem'd to be assur'd of it, by an infinite number of experiments. But lately this has been found to be false, provided that one of the sides of the Vessel be very narrow, for then the water will rise higher on that, then on the other side. This shews us, that Inductions only can give us no solid assurance of any Truth, unless we could be certain they were general, which is impossible. And by consequence we could be but probably assur'd of the Truth of this Axiom ; *The whole is bigger then the part*, were we no other way assur'd of it, but because we have seen a Man bigger then his Head, a Forrest bigger then a Tree, a House bigger then a Chamber, or the Heavens then a Star. For that we should have always reason to doubt, whether there were not some other *whole*, not so big as its part that had escaped our knowledge.

'Tis not then upon the observations we have made from our Infancy, that the certainty of this Axiom depends, there being nothing more likely to precipitate us into error, then to trust to the prejudices

judices of our Infancy. But it solely depends upon that which is contain'd in the clear and distinct *Ideas* of the *whole*, and a *part* : that is, that the *whole* is bigger then a *part*, and a *part* less then the *whole*. And as for all our former observations of a Man's being bigger then his Head, a House then a Chamber, they only furnish us with an occasion to consider more diligently the *Ideas* of the *whole* and a *part*. But it is absolutely false, that they are the absolute and undeniable causes of the Truth of this Axiom.

What we have said of this Axiom may be said of others, and so I believe that the certainty and evidence of human knowledge in natural things, depends upon this principle.

What ever is contain'd in the distinct and clear Idea of a thing, may be truly affirm'd of that thing.

Thus because that *Animal* is included in the *Idea* of *Man*, I can affirm of *Man*, that he is an *Animal*. Because to have all its Diameters equal, is included in the *Idea* of a Circle, I can affirm of any Circle, that all its Diameters are equal : Because the having of all Angles equal to two Right Angles, is included in the *Idea* of a Triangle, I can affirm it of every Triangle.

Nor can this Principle be disputed, without denying all evidence of Human Knowledge, and setting up a ridiculous *Pyrrhonism*. For we cannot judge of things but by the *Ideas* which we have of 'em, since we have no way to conceive 'em, but as they are represented to our thoughts, and that only by their

their *Ideas*. Now if the judgments which we make while we contemplate these *Ideas*, should only represent our Thoughts, and not the Things themselves; that is to say, if from the knowledge that we have; that the equality of three Angles, with two right Angles, is contain'd in the *Idea* of a Triangle, I could not conclude that every Triangle has three Angles, equal with two right Angles, but one that I thought so, ~~it~~ it is visible, that then we should have no knowledge of Things, but only of our Thoughts; and by consequence we should know nothing of those things which we perswade ourselves to be most certain of; only we might say that we think so; that would manifestly destroy all manner of Sciences.

And we need not fear, that there are any Persons who seriously agree upon this consequence, that we know not the truth or falshood of any thing consider'd in it self. For there are some things so plain and evident; as, *I think therefore I am; the Whole is bigger than its Part*, that it is impossible seriously to doubt, whether they be such in themselves as we conceive 'em to be. For we cannot doubt of 'em without thinking, nor can we think without believing 'em true, and by consequence we cannot doubt of 'em.

Nevertheless this one Principle does not suffice to judge of what ought to be receiv'd for an Axiom. For there are Attributes, which both may and ought to be enclos'd in the *Idea* of things, which nevertheless both may and ought to be demonstrated, as the equality of
all

all the Angles of a Triangle to two Right ones: Or of all the Angles of a *Hexagon* to eight Right Angles. But it will be needful to observe, whether the *Idea* of a thing require only a slight consideration, to see clearly that the Attribute is contain'd in the *Idea*; or whether it be requisite to joyn some other *Idea*, to discover the Connexion when it is only necessary to consider the *Idea* only, the Proposition may be taken for an *Axiom*, especially if that consideration require but a slight attention, of which ordinary understandings may be capable; but if it be requisite to joyn another *Idea* to the *Idea* of the thing, 'tis a Proposition to be demonstrated, and so these two Rules may be given concerning *Axioms*.

I. RULE.

When, to see that an Attribute agrees with a Subject; as to see that it agrees with the whole to be bigger then its part, there needs but a slight Attention to consider the two Ideas of the Subject and the Attribute; insomuch that it may be done, without perceiving that the Idea of the Attribute is included in the Idea of the Subject, we have then reason to take that proposition for an Axiom which requires no Demonstration, because it contains in it self all the Evidence that Demonstration could give it; which can do no more then shew that the Attribute agrees with the Subject, by making use of a third Idea to shew the Connexion, which is already seen without the assistance of a third Idea.

But

But we must not confound a bare Explication, though it carry'd some form of an Argument with a true Demonstration. For there be *Axioms* that require Explanation, that they may be the better understood, though they have no need of Demonstration, explanation being nothing else but to speak in other terms, and more at large what is contain'd in the Axiom; whereas an Axiom requires some near way which is not clearly contained in the Axiom.

2. R U L E.

When the sole consideration of the Ideas of the Subject and the Attribute suffices not to shew clearly, that the Attribute agrees with the Subject, the Proposition that affirms it is not to be taken for an Axiom; but it ought to be demonstrated by making use of certain other Ideas to shew the Connexion; as we make use of the Idea of Parallel Lines, to shew, that three Angels of a Triangle are equal to two Right Angels.

These two Rules are of greater moment, then they are generally taken to be. For it is one of the most usual errors among Men, not to consult themselves sufficiently in what they deny or affirm, but to give credit to what they have heard others say, or what they have formerly thought themselves, never minding what they would think themselves, should they take more time and study to consider their own thoughts; heeding more the sound of words; and affirming for clear and evident what is impossible for 'em to conceive; and denying as false, what

what it would be as impossible for 'em to believe not to be true, would they but take the pains of more serious consideration.

For Example, they who say that in a piece of Wood, besides its parts and their Situation, their figure, their motion and their rest, and the pores that lie between the parts, there is yet a substantial form distinct from all these things, believe they speak nothing but Truth, yet all the while they speak what neither They, nor any other Person living do comprehend or ever will.

However, if they would explain the effects of Nature, by the insensible parts of which Bodies are compos'd, and by their different situation, bigness, figure, motion or rest, and by the Pores between the parts, that open or stop the passage for other matters, they believe we talk nothing but *Chimeras*, though we'll tell 'em nothing but what may be easily conceiv'd. And by a strange blindness of understanding, the easiness of conceiving these things, carries 'em to believe that they are not the real causes of Natures effects; but that they are more occult and mysterious. So that they rather chuse to believe those that explain 'em by Principles which they conceive not, then those that make use of Principles which they understand.

And what is yet more pleasant, when we talk to 'em of insensible parts, they believe they have sufficient ground to reject 'em, because they can neither be felt nor seen: Whereas they can swallow substantial Forms, Ponderosity, Vertue Attractive, &c. which

which they cannot only neither see nor feel, but not so much as conceive.

C H A P. VII.

Certain Axioms of Moment that may serve for Principles of great Truth.

IT is a thing by all confess'd, that it is of great Moment, to bear in our Memories and Minds several Axioms and Principles, which being clear and unquestionable may serve as a Foundation to lead us to the knowledge of things most occult. Though many that are most usually laid down, are of so little use, that it is needless to know 'em. for that which they call the first principle of Knowledge, *it is impossible that the same thing should be, and not be,* is most clear and evident. But I know no occasion wherein it may be serviceable to teach us general knowledge.

But these that follow may be of some use.

1. A X I O M.

All that is concluded in the clear and distinct *Idea* of a Thing may be affirm'd with Truth.

2. A X I O M.

The Existence, at least, that which is possible is included in the Idea of that which we conceive clearly and distinctly.

For

For after a Thing is conceiv'd clearly and distinctly, we cannot deny it possible Existence. In regard that we deny things to be by reason of the contradiction between our *Ideas*.

3. A X I O M.

Nothing can be the cause of any thing. From this springs other Axioms that may be call'd Corollaries, such as these that follow.

4. AXIOM; or 1. COROLLARY of the 3.

No Thing, or no Perfection of a Thing in Being, can have no Thing, or a Thing not being for the cause of its Existence.

5. AXIOM; or 2. COROLLARY of the 3.

All Reality or Perfection of a Thing is found formally and eminently, in the first and adequate cause.

6. AXIOM; or 3. COROLLARY of the 3.

No Body can move it self, that is give motion to it self, not having any.

This Principle is so naturally eminent, that it is that which has introduc'd substantial Forms, and the real qualities of Ponderosity and Lightness. For the Philosophers on the one side, finding it impossible, that that which ought to be mov'd should move it self; and being erroneously perswaded on the other side, that there was nothing without, that push'd down the Stone when it fell, thought it necessary to distinguish two things in a Stone, the matter that receiv'd the motion, and the substantial form assisted by gravity, that begat the motion: Not heeding that they fell thereby into that inconvenience which they sought to avoid, if the form

it

it self were material, that is real matter. Or if it were not matter, that then it was to be a substance really distinct. Which it was impossible for them clearly to conceive, at least to conceive it as a Spirit, or thinking Substance; as is the Form of Man, and not the Forms of other Bodies.

7. *AXIOM.*

No Body can move another, unless it be mov'd it self.
For if a Body being at rest cannot give motion to it self, it can never give motion to another.

8. *AXIOM.*

We must deny that which is clear and evident, because that which is obscure, cannot be apprehended.

9. *AXIOM.*

It is the nature of a final Spirit not to apprehend an Infinite.

10. *AXIOM.*

The Testimony of a Person infinitely Powerful, infinitely Wise, infinitely Good, and infinitely True, ought to be more effectual to convince us then the most prevailing Demonstrations.

For we ought to be more assur'd, that he who is infinitely wise cannot be deceived; and that he who

is infinitely good will not deceive us ; then we can be assur'd, that we are not deceiv'd our selves in things most evident.

These three last Axioms are the Foundations of Faith, of which more hereafter.

II. A X I O M.

Those Actions of which the Sense may easily judge, being attested by a Great Number of Persons of sundry Centuries, sundry Nations and various Interests, who speaks of 'em, as seen by themselves, and whom we cannot suspect for Conspiring to uphold a Falshood ought to pass for as constant and unquestionable, as if we had seen 'em with our Eyes.

This is the Foundation of the greatest part of our Knowledge, there being infinitely a greater Number of things, which we know by this means, than of those which we know of our selves.

C H A P. VIII.

Of Rules relating to Demonstration.

A True Demonstration requites two things. The one that in the matter there be nothing, but what is certain and unquestionable. The other that there be nothing faulty in the Form of the Argument

ment. Now we shall obtain both the one and the other, if we observe the two Rules, which we have premis'd.

For there will be nothing, but what is certain in the Matter, if all the Propositions made use of for Proofs, be,

Either Definitions of words already explain'd, which being Arbitrary cannot be question'd.

Or Axioms conceded, and which ought not to be admitted, if they be not clear and evident of themselves by the 3^d Rule.

Or Propositions already demonstrated, and which by consequence are become clear and evident by the Demonstration made.

Or the Construction of the thing it self, which is in Dispute, when there is any Operation to be done, which ought to be as unquestionable as the rest, since the Possibility ought to be first demonstrated, if there be any question concerning it.

Clear it is therefore, that observing the first Rule, nothing must be brought to prove a Proposition, but what is certain and evident. It is also easie to shew, that there can be no Error against the Form of Argument, by observing the second Rule, which is not to make an ill Use of the Equivocation of Terms, by failing to substitute mentally the Definitions that restrain and explain 'em.

For if ever we transgress against the Rules of Syllogisms, it is in deceiving our selfe with the Equivocation of some Term; and taking it in one Sense in one of the first Propositions, and in another Sense in

the other, which happens chiefly in the Middle Term which being taken in two various Senses in the two first Propositions, is the usual fault of vicious Arguments. Now it is clear, that Fault may be avoided, if we observe the second Rule.

Not that those are the only Vices of Syllogisms, that arise from the Equivocation of Terms, but those other are of such a nature, that it is almost impossible, that a Person but a mean and ordinary capacity should ever fall into 'em, especially in speculative Matters. And therefore it would be a needless thing to admonish 'em to beware of these Errors, or to prescribe Rules. Besides that it would rather be hurtful, in regard the consideration of these superfluous Rules, would but draw off our Studies from those that are more necessary.

Therefore we find the *Geometricians* never trouble themselves about the Forms of their Arguments, nor dream of conformity to the Rules of Logic, and yet they are never deceiv'd; in regard they are guided by nature, with the Assistance of much Study.

There is another Observation to be made upon Proportions that require Demonstrations. That is, that they are not to be reck'ned for such, which may be demonstrated for such by the Application of the Rule of Evidence to every evident Propositions. For if it were so, there would hardly be any Axiom, which would not require Demonstration; when almost all may be demonstrated by that Axiom, which we have laid down as the Foundation of all Evidence. *Whatever we find to be contain'd in one*
clear

clear and distinct Idea, may be affirm'd for Truth. As for Example,

All that we find in one clear and distinct Idea may be affirm'd for Truth.

Now we see that the clear and distinct Idea, which we have of the whole, includes it's being bigger than it's Part.

Therefore we may affirm for Truth that the whole is bigger then its part.

But though this be a very good Proof, yet is it not absolutely necessary, because the Understanding supplies the Major, without any necessity of a particular consideration, and clearly and evidently sees that the whole is bigger then a part, without reflecting from whence the Evidence arises. For they are two different things to know a thing Evidently, and to know from whence arises the Evidences.

CHAP. IX.

Of some Errors usually occurring in the Method of the Geometricians.

WE have seen what is good in the Method of the Geometricians, that it has reduc'd us to five Rules, in the Observation of which

which we cannot be too exact. And we must confess it for a thing most admirable, they having discover'd so many occult things, and their having demonstrated 'em by so many firm and invincible reasons, by the help of so few Rules. So that among all the Philosophers, they have only the advantage to have banish'd out of their Schools and Writings, Contest and Dispute.

Nevertheless to make a judgment of things without prejudice, as we cannot deny 'em the honour to have follow'd a way much more assur'd then others, to find out the truth, so we cannot deny but that they are fallen into some errors, which do not lead 'em however from their end, but are the cause that oft-times they do not attain their end by the most direct and commodious way. Which I shall endeavour to make out, drawing from *Euclid* himself, the Examples of these defaults.

1. DEFAULT.

To be more diligent, and take more care of Certainty then of Evidence, and of convincing than an Enlightning the Understanding.

The Geometricians are to be commended for asserting nothing but what is certain and demonstrated. But they seem not to have heeded, that to have a perfect Knowledge of a Truth, it does not suffice to be convinc'd that it is a Truth, unless we dive into the Reasons taken from the Nature of the thing, why it is true. For 'till we are arriv'd at that point,

point, our Understanding is not fully satisfied, and therefore searches still after a farther Knowledge, then that which it has; a sign it has not yet attain'd a true knowledge. And this is the source of all the rest which we shall observe.

2. *E R R O R.*

To prove Things that have no need of Proof.

The Geometricians confess that there is no need of proving those things that are clear of themselves. Nevertheless they do it frequently; for that being more sedulous to convince, then clear the Understanding, they think they shall be more able to convince by producing some Proof of things themselves the most evident, then by proposing 'em barely, and leaving the Understanding to find out the Evidence.

This inclin'd *Euclid* to prove that two sides of a Triangle being taken together, are bigger than one only, though it be evident by the sole notion of a right Line; which is the shortest length that can be drawn between two points, and the natural measure of the Interval between Point and Point; which it could not be, if it were not the shortest of all the Lines that can be drawn from a Point to a Point.

This also induc'd him to make a Problem of that which he ought to have made a Question, *viz.* To draw a Line equal to a Line given; tho it be as easie, and

and more easie then to draw a Circle having one Radius given.

This Error without doubt proceeded from his not considering that all certainty and evidence of our knowledge in natural things arises from this Principle. *That we may affirm of a thing, whatever is contain'd in its clear and distinct Idea.* Whence it follows that it were needless to know, that an Attribute is concluded in an *Idea*, that upon the bare consideration of the *Idea* without the addition of any other, it ought to pass for evident and clear, as we have already said.

I know there are some *Ideas* that are more easily known to be concluded in the *Ideas*, then other. But I believe it sufficient, if they may be clearly known with a slight consideration, so that no Person that has any thing of Ingenuity can seriously question it, that the Propositions be look'd upon as drawn from a bare consideration of *Ideas*, as from Principles that have no need of Proof, but of Explanation and some little Discourse. Thus I affirm, that there is no Man who has never so slightly consider'd the *Idea* of a Right-Line; but he will not only presently conceive that its Position depends only upon two Points (which *Euclid* took for one of his Questions) but that he will also clearly and easily apprehend, that if one Right-Line cut another, and that there be two points in the cutting Line, each equally distant from the points of the Line cut, there is no other point of the Line cutting, which will not be equally distant from the two points of the cut Line.

From

From whence it will be easie to know when any one Line will be Perpendicular to another, without the help of Angle or Triangle ; which ought not to be handled till after the laying down of many things which cannot be demonstrated, but by Perpendiculars.

We are also to observe, that excellent *Geometricians* have laid down for Principles, Propositions much more obscure then this of ours. As when *Archimedes* builds his neatest Demonstrations upon this Maxim. *If two Lines in the same Plane have two Extremities ; or if they be crooked or hollow toward the same part, the contain'd will be lesser then that which contains it.*

I confess this error of going about to prove that which requir'd no Proof, seems to be but a small fault, and indeed none in it self, yet we shall find it to be a great one, if we consider the Consequences. For from hence arises that transversement of the order of Nature, of which hereafter ; this desire of proving that which is to be suppos'd clear and evident of it self, having often oblig'd *Geometricians* to treat of things on purpose to furnish themselves with Proofs for those things which they ought not to prove, and which according to the order of Nature, ought not to have been treated of till afterwards.

3. *DEFAULT.**To shew by Impossibility.*

The sorts of Demonstrations that shews a thing to be such, not by Principles, but by some absurdity that would follow, if it were otherwise, are very ordinary in *Euclid*. Whereas it is manifest that such Demonstrations constrain us indeed to give our Consent, but no way clear our understanding : Which ought to be the principal end of the Sciences. For our Understanding is not satisfied, if it does not know not only what the thing is, but why it is ? Which cannot be obtain'd by a Demonstration reducing to Impossibility.

Not that these Demonstrations are altogether to be rejected; For sometimes they may be useful to prove Negatives, which are properly no more then Collaries of other Propositions either clear of themselves, or demonstrated already some other way, and then this Demonstration by reducing to Impossible Supplies the place of an Explanation, rather then a new Demonstration.

Lastly it may be said that these Demonstrations are not to be admitted; but when we can give no others, and that it is an Error to use 'em for the Proof of that which may be positively prov'd.

Now there are several Propositions in *Euclid*, which he proves only by this way, which without much difficulty might be prov'd after another manner

4. *DEFAULT.*

Demonstrations drawn from things too remote.

This Error is very common among the *Geometricians*. They never trouble themselves whence the Proofs which they bring are taken, so they be but convincing. Nevertheless it is but an imperfect way of proving things, by ways remote and foreign, upon which the things demonstrated no way depend according to the order of Nature.

All which we shall understand better by some few Examples.

Euclid. l. 1. Propof. 5. proves that an *Isosceles* Triangle has two Angles equal at the Base. To this purpose he equally extends the sides of a Triangle, and makes new Triangles which he compares one with another.

But it is not incredible that a thing so easie to be prov'd as the equality of those Angles would have need of so much cunning to prove it, as if there were any thing more ridiculous then to imagine that this equality depended upon forreign Triangles; whereas, had he follow'd true order, there are many ways more easie, shorter and more natural to prove the same inequality.

The Forty seventh of the same Book, where it is prov'd that the square of a Base that strains a Right Angle, is equal to the two squares of the sides, is one of the most esteem'd Propositions in

Euclid.

Euclid. And yet it is evident that the manner by which he there proves it is not so natural; since the equality of Squares does no way depend upon the equality of Triangles, which are taken however as the means for this Demonstration; but upon the Proportion of Lines, which may easily be demonstrated without the help of any other Line, then the Perpendicular from the Top of the Right Angle to the Base.

All *Euclid* is full of these Foreign Demonstrations.

5. DEFAULT.

To take no care of the true order of Nature. This is the greatest Error of Geometricians. For they believe there is no order to be observed, so that the first Propositions may but serve to demonstrate those that follow. And therefore never heeding the Rules of true method, which is always to begin at the most plain and general things, from thence to ascend to things more compos'd and particular, they confound every thing, and treat pell mell of Lines and Surfaces, Triangles and Squares; prove by figures the Proprieties and simple Lines, and make an infinite number of other Topsi-turvies, that disfigure the noble Science.

The Elements of *Euclid* are stuffed with Errors of this Nature, after he has treated of Extent in his four first Books, he Treats of the Proportions of all sorts of bulks in his fifth. He resumes his Argument of extent in the sixth, and treats of numbers

bers in the seventh, eighth and ninth, to resume again in his tenth his first discourse of extent. Which is a preposterous disorder in general: But there are many others more particular. He begins his first Book with the Construction of an equilateral Triangle; and 22 Propositions, after he has prescribed the general method of making a Triangle of three Right Lines given; provided that two be bigger than the third; which denotes the particular construction of an equilateral Triangle, upon a Line given.

He proves nothing as to perpendicular Lines, and Parallels but by Triangles; and intermixes Dimension of surfaces with that of Lines.

He proves, L. I. Prop. 16. that the side of a Triangle being extended in length, the exterior Angle is bigger than either of the Angles inwardly opposite; and sixteen Propositions after that, that this exterior Angle is equal to two opposite.

It would require a Transcription of *Euclid* to give all the Examples of this disorder that might be produc'd.

6. D E F A U L T.

Not to make use of Divisions and Partitions.

It is another great error among Geometricians, not to make use of Divisions and Partitions. Not but that they mark out all the Species's of those Genus's of which they treat, but because they do it simply, by defining the Terms, and putting all the Definitions

tions afterwards, without observing that a *Genus* has so many *Species*, and that it can have no more ; because the general *Idea* of the *Genus* can receive but so many differences ; which would give us a great deal of light to dive into the nature of *Genus* and *Species*.

For example, we shall find in the first Book of *Euclid*, the Definitions of all the *Species*'s of a *Triangle*. But who doubts not but that the *Thing* would be much more clear, were these *Species*'s thus propounded.

A *Triangle* may be divided either according to its *Side* or *Angles*.

The *Sides* are,

Either { All equal, and are call'd *Equilateral*.
 { Two only equal, then call'd *Isosceles*.
 { All unequal, then call'd *Scatenum*.

The *Angles* are,

Either { All three *Acute*, and are call'd *Oxigons*.
 { Two only *Acute*, and then the third is
 { Right, then call'd *Rectangle*.
 { Obtuse, then call'd *Amblygon*.

And it is better not to give this Division of *Triangles*, till after the general explanation and demonstration of all the *Proprieties* of a *Triangle* ; whence we should have learnt, that at least two of
 the

the Angles of a Triangle must be Acute, because that all three together are but equal to two Right Angles.

This Error minds us of that of inverted order, since we ought not to treat of *Species*, nor to define 'em, 'till after we understand the *Genus*, especially when there are many things to be said of the *Genus*, which may be explain'd without mentioning the *Species*.

CHAP. X.

An Answer to what the Geometricians alledg for themselves.

THERE are some *Geometricians* who believe they have justify'd themselves as to these defaults, by saying that they never troubled their heads about 'em; that it is sufficient for them to aver nothing but what they prove convincingly, and that they are thereby assur'd that they have found out the Truth, which is all they aim at.

We must confess indeed, that these defects are not so considerable, but that we must acknowledge, that of all human Sciences there are none better handled, than those that are comprehended under the general name of *Mathematics*. Only we affirm, that there may yet be something added to render 'em more perfect, and that though the Principal thing

thing which they ought to consider, be, to advance nothing but what is true, yet it were to be wish'd that they would be more diligent in finding out the most natural manner of imprinting the same Truth in the understanding.

For let 'em say, if they please, that they take no heed to observe any genuine order, or to prove their Propositions, whether by ways natural or remote, so they have their end of conviction, yet can they not thereby alter the nature of our understanding, nor imprint a more clear, more entire and more perfect knowledge of things which we know by their true causes and their true Principles, by those other proofs of theirs, which are remote and Foreign.

Besides, that it is unquestionably true, that those things are far more easily learnt, and better retain'd in the memory, which we learn by right order, in regard those *Ideas*, that are link'd one to another in a continued series, are without confusion committed to the memory, and awaken each other when need requires more promptly and with greater facility. We may also affirm this moreover, that what we affirm by diving into the true reason of things, is not retain'd so much by the memory as by the Judgment; and it becomes so much our own, that we cannot forget it. Whereas that which we only know by demonstrations, not grounded upon natural Reasons, sooner slip out of our minds, and is more difficultly recover'd; because our understanding does not furnish us with the means to recover what we have lost.

We

-We must then agree, that it is much better to observe then not to observe this order. So that all that the most equal judges can say in this particular, is that we must neglect a smaller inconvenience, when it cannot be avoided, for fear of falling into a greater.

And thus it is indeed an inconvenience not to observe a right order; but that it is better not to observe it, then to fail of proving invincibly what is propounded; and to expose our selves to error and Paralogism, by searching after certain Proofs that may be more natural, but which are not so convincing, nor so exempt from all suspicion of Deceit.

This is a very specious Answer: And I confess that assurance of not being deceiv'd, is to be preferred before all things; and that right order is to be neglected, where it cannot be followed without losing the force of Demonstration, and exposing our selves to mistake. But I cannot agree, that it is impossible to observe both the one and the other: And I believe that the Elements of Geometry might be so compos'd, that all things might be handled in their natural order, all the propositions prov'd by ways that are most natural and simple, and yet that all things should be clearly demonstrated.

CHAP. XI.

The Method of Sciences reduc'd to Eight Principal Rules.

IT may be concluded from what has been said, that to have a more perfect method, than that in use among the *Geometricians*, we ought to add two or three Rules to those five already laid down in the second Chapter. So that all the Rules may be reduc'd to eight. Of which the two first relate to *Ideas*, and may be referr'd to the first part of this *Logic*.

The third and fourth relate to *Axioms*, and may be referr'd to the second part, and the fifth and sixth relate to Arguments, and may be referr'd to the third part. And the two last relate to order, and may be referr'd to the fourth part.

Two Rules touching Definitions.

1. To let go none of the Terms that are but a little obscure or equivocal, without defining 'em.
2. In Definitions not to make use of Terms that are not perfectly known, or already explain'd.

Two Rules for Axioms.

3. To require in *Axioms* only those things that are perfectly evident.
4. To

4. To receive for evident that which requires but a slight consideration to make it pass for truth.

Two Rules for Demonstration.

5. To prove all the Propositions that are but a little obscure, by the assistance of preceding Definitions, *Axioms* conceded, or Proper Propositions already demonstrated.

6. Never to make an ill use of the Ambiguity of Terms, by failing to substitute at least mentally, those definitions that restrain and explain 'em.

Two Rules for Method.

7. To handle Things, as much as may be, in their Natural Order, beginning from the most simple and general, and explaining whatever appertains to the nature of the *Genus*, before we proceed to particular *Species*.

8. To divide, as much as may be every *Genus* into all its *Species*, every whole into its parts, and every difficulty into all Cases. I have added to these Rules, *as much as may be*, because it is true, that we may meet with some occasions, wherein they cannot be observ'd to the utmost severity; either because of the narrow limits of human understanding; or by reason of those Bounds that we are constrain'd to assign to every Science.

Whence it happens, that a *Species* is sometimes to be explain'd before we can explain all that belongs

longs to the *Genus*. Thus in common *Geometry* we treat of a Circle, without saying any thing of a crooked Line, which is the *Genus* of a Circle, which we think sufficient to define.

Nor can we explain all that might be said of a *Genus*, which would often prove too tedious. But it suffices then to speak as much as we think expedient, before we pass to the *Species*.

However, I believe no Science can be perfectly deliver'd, without observing these two last Rules, as well as the rest; which are not therefore to be dispens'd withal, but upon absolute necessity, or for some great advantage.

CHAP. XII.

Of what we know by Faith, whether Human or Divine?

WHAT we have hitherto discours'd, relates to Sciences purely human, and Knowledge founded upon the evidence of Reason. But before we conclude, it will not be amiss to speak of another sort of Knowledge, which oft-times is no less certain, nor less evident in its manner, than that which we draw from Authority.

For there are two general ways, by which we know a Thing to be true: The first is the knowledge

ledg which we have by our selves, whether we have attain'd it by Observation or Ratiocination, whether by our Sences or by our Reason; which may be generally term'd *Reason*, in regard the Sences themselves depend upon the judgment of *Reason* or *Knowledge*; the word being here more generally taken than in the Schools; for all manner of knowledge of an object drawn from the same object.

The other way is the Authority of Persons worthy of credit, who assure us that a thing is so. Tho of our selves we know nothing of it. Which is call'd Faith or Belief, according to the words of St. *Austin*, for what we know, we owe to reason; for what we believe, to Authority.

But as this Authority may be of two sorts, either from God or Men, so there are two sorts of Faith, Divine and Human.

Divine Faith cannot be Subject to error, because that God can neither deceive us nor be deceiv'd.

Human Faith is of its self subject to error, for all Men are Lyars according to Scripture: And because it may happen, that he who shall assure us of the certainty of a thing, may be deceiv'd himself. Nevertheless as we have already observ'd; there are some things which we know not, but by a Human Faith, which nevertheless we ought to believe for as certain and unquestionable, as if they were Mathematically demonstrated. As that which is known by the constant relation of so many Persons, that it is morally impossible they should ever have conspir'd to affirm the same things, if they were

were not true. For example, Men have been naturally most averse from conceiving any *Antipodes*, nevertheless though we never were in those places, and know nothing of any *Antipodes* but by human Faith, he must be a Fool that does not believe 'em. And he must be out of his wits, who questions whether ever there were any such Persons as *Cæsar*, *Pompey*, *Cicero* or *Virgil*, or whether they were not feigned Names, as *Amadis de Gaul*.

True it is, that it is a difficult thing to know when Human Faith has attain'd to this same assurance; and this is that which leads Men astray into two such opposite Deviations: So that some believe too slightly upon the least report. Others ridiculously make use of all the force of their wit, to annul the belief of things attested by the greatest authority, when it thwarts the prejudice of their understanding. And therefore certain Limits are to be assign'd, which Faith must exceed to obtain this assurance; and others, beyond which there is nothing but uncertainty, leaving in the middle a certain space, where we shall meet with certainty or uncertainty, as we approach nearer to the one or the other of these Bounds.

Now then if we do but compare the two general ways, by which we believe a thing to be true, Reason and Faith; certain it is, that Faith always supposes some Reason. For as *St Austin* says in his 122 Epistle, and in several other

other places, we could never bring our selves to believe that which is above our reason, if reason it self had not perswaded us, that there are some things which we do well to believe, tho we are not capable to apprehend 'em, which is principally true in respect of Divine Faith. For true Reason teaches us, that God being truth it self, he cannot deceive us in what he reveals to us concerning his Nature and his Mysteries; whence it appears that though we are oblig'd to captivate our Understanding in obedience to Faith, as saith St. Paul, yet we do it neither blindly nor unreasonably (which is the original of all false Religions;) but with a knowledg of the Cause, and for that it is but a reasonable Act to Captivate our selves to the Authority of God, when he has given us sufficient Proofs, such as are his Miracles and other Prodigious Accidents, which oblige us to believe that he himself has discovered to Men the Truths which we are to believe.

As certain it is in the second Place, that Divine Faith ought to have a greater power over our Understanding than our own Reason. And that upon this Dictate of Reason it self, that the more certain is to be prefer'd before the less certain; and that is more certain which God assures us to be true, than that which Reason perswades us; when it is more contrary to the Nature of God to deceive us, than the nature of our own Reason to be deceiv'd.

C H A P. XIII.

*Certain Rules for the guidance of Reason,
the belief of Events that depend upon
Human Faith.*

THE most customary use of sound Judgment, and that Faculty of the Soul, by which we discern Truth from falshood is not employ'd in speculative Sciences, about which so few Persons are oblig'd to spend their time, and yet there is no occasion wherein it is more frequently to be made use of, and where its more necessary than in that Judgment which we ought to make of what passes every day among Men.

I do not speak of judging whether an Action be good or bad, worthy of applause or reproof, for that belongs to the regulation of Morality; but of judging of the Truth or Falshood of human Events, which may only be refer'd to Logic, whether we consider 'em as past, as when we only endeavour to know whether we ought to believe 'em or not? or whether we consider 'em as being to come, as when we fear or hope they will come to pass, which regulates our hopes and our fears.

Certain it is, that some Reflexions may be made upon this Subject; which perhaps may not be altogether unprofitable, or rather may be of great use for the avoiding of certain Errors into which most People fall, because they do not sufficiently study the Rules of Reason.

The

The first Reflexion is, that there is a vast difference to be made between two sorts of Truths; the one that only relates to the nature of things and their Immutable Essences; abstracted from their existence; the other that relates to things existent that relate to human and contingent Events, which may or may not come to pass when we speak of the future, and may probably never have bin, when we talk of what is past. I speak with this reference to their next causes, making an abstraction of their Immutable order in Divine Providence; because on the one side it does not hinder Contingence, and on the other side being unknown to us, it contributes nothing to make us believe the things themselves.

Now as all things are requisite in truths of the first sort, there is nothing sure, which is not Universally true, and so we must conclude that a thing is false if it be false in any case.

But if we think to make use of the same Rules in human Events; we shall always judge falsely, and make a Thousand false Arguments.

For these Events being naturally Contingent, it would be ridiculous to seek out in them for a necessary Truth. And so that Person would be altogether void of Reason, who would believe nothing of such things unless it were made out to him, that it was absolutely necessary they should be so.

Nor would he less deviate from Reason that would require me to believe any particular Event (suppose it were the Conversion of the King of China to the Christian Religion) upon this only ground,

because it is not Impossible to be so. For seeing that another who should assure me to the contrary may make use of the same Reason ; it is clear that that Reason alone cannot determin me to believe the one rather then the other.

We must therefore lay it down for a certain and unquestionable Maxim upon this occasion, that the Possibility alone of an Event is not a sufficient reason to make me believe it, and that I may have reason also to believe a thing, tho I judge it not impossible, but that the contrary may have come to pass ; So that of the Two Events I may rationally believe the one and not the other, tho I believe 'em both possible.

How then shall we resolve to believe the one rather than the other, if we judge 'em both possible ? Observe the following Rule.

To judge of the Truth of an Event, and to persuade my self into a Resolution to believe, or not to believe a thing ; it must not be consider'd nakedly, and in it self, like a Proposition in *Geometry* ; but all the circumstances that accompany it, as well internal as external, are to be weigh'd with the same consideration ; I call Internal Circumstances (such as belong to the Fact it self ; and external, those that relate to the Persons, whose Testimonies induce us to believe it. This being done, if all the Circumstances are such, that it never, or very rarely happens, that the same Circumstances are accompany'd with Falshood : Our Understanding naturally carries to believe the thing to be true ; and there is a reason.

reason for so doing, especially in the Conduct of the Actions of our Life, that never requires a greater assurance than a moral Certainty, and which is satisfi'd upon most occasions with a great Probability. But on the other side, if these Circumstances are such as are frequently accompanied with Falshood; Reason requires us to suspend our Belief; or that we should look upon as false what is told us, when we see no likelihood, that it should be true, tho we do not find any absolute Impossibility.

For Example, we demand, whether the History of the Baptism of *Constantine* by *Silvester* be true, or false? *Baronius* believes it true; but Cardinal *Perron*, Bishop *Spondanus*, *Petavius*, *Morinus*, and the most Eminent of the *Roman* Church believe it false. Now if we insist upon the sole Possibility, we have no reason to reject *Baronius*. For his opinion contains nothing absolutely impossible; and to speak absolutely, it is also possible, that *Eusebius*, who affirms the contrary, affirm'd an untruth in favour of the *Arrians*; and that the Fathers that followed him were deceiv'd by his Testimony. But if we make use of the Rule already laid down, which is to consider what are the circumstances both of the one and the other Baptism of *Constantine*, and which are those that carry the greatest marks of Truth, we shall find 'em to be the latter. For on the one side, there is no great reason to rely upon the Testimony of a Writer, as Fabulous as the Author of the Acts of *Silvester*, who is the only Person of Antiquity, who has spoken of *Constantin's* being Baptized at *Rome*.

And on the other side there is no likelihood that a Person so Serious and Learned as *Eusebius* should presume to report an untruth relating to a thing so remarkable, as the Baptism of the first Emperor, that restor'd the Church to her Liberty, and which ought to have been spread over all the World, at the same time that he wrote, which was not above four or five Hundred years after the Death of the said Emperor.

Nevertheless there is an Exception to this Rule, by which we ought to be satisfied with possibility or likelihood. That is, when an action, which is otherwise sufficiently attested, is contradicted by Incongruities and apparent contrarieties with other Histories.

For then it suffices that the Solutions brought to enervate these Repugnances be possible and probable ; and it would be unreasonable to require other positive Proofs ; for that the Act it self being sufficiently prov'd, it is not equitable to require that we should prove all the Circumstances in the same manner. Otherwise we might call in question a Thousand most certain Histories, which we cannot make agree with others of less Authority, but by Conjectures which it is impossible to prove positively.

For Example, we cannot bring to an agreement what is deliver'd in the *Kings* and *Chronicles* concerning the years of the Reigns of several of the Kings of *Juda* and *Israel*, but by assigning to some of the Kings, two beginnings of their Reigns, the one during

ring the Life of the Reigning Prince, and the other after the Decease of their Parents. Now if it be ask'd what Proof we have that such a Prince Reign'd for some time with his Father, we must confess there is none Positive. But it suffices that it is a thing Possible, and which has often come to pass at other times, to make it Lawful for us to suppose it, as a Circumstance necessary to reconcile Histories otherwise certain.

And therefore there is nothing more ridiculous than the endeavours of some Persons of this latter Age, to prove that *St. Peter* never was at *Rome*. They cannot deny this Truth to be attested by all the Ecclesiastic Writers, and those the most ancient, as *Papias*, *Dionysius of Corinth*, *Caius*, *Irenæus*, *Tertullian*; against whom there is not any one that has made the least Contradiction.

Nevertheless they imagin they can ruin this Truth by Conjectures; for example, because *St. Paul* makes no mention of *St. Peter* in his Epistles written at *Rome*; and when they are answer'd that *St. Peter* might be then absent from *Rome*, in regard he is not said to have fix'd his Seat there, as being one that often Travell'd abroad to Preach the Gospel in other places; they reply that this is urg'd without any Proof, which is impertinent, because the act which they oppose, being one of the most confirm'd Truths in Ecclesiastical History, it is sufficient for those that uphold it to reconcile these pretended contraries, as they do those of the Scripture it self; for which, as we have shew'd Possibility is sufficient.

CHAP. XIV.

An Application of the Preceeding Rule, to the Belief of Miracles.

TH E Rule which we have explain'd is without doubt of great Importance, for the well regulating our Reason in the belief of particular Acts. For want of the due Observation of which we are in great danger of falling into the two dangerous extremities of Credulity and Incredulity.

For Example, there are some, who make a Conscience of questioning any Miracle; because they have a Fancy, that they should be oblig'd to question all, should they question any; and for that they are perswaded, that it is enough for them, by knowing that all things are possible with God, to believe whatever is told 'em touching the Effects of his Omnipotency.

Others as ridiculously imagine, that it is in the Power of the Understanding to call all Miracles in question, for no other reason, because so many have been related that have prov'd to be false, and therefore there is no more reason to believe the one than the other.

The Inclination of the first is much more tolerable than that of the latter; tho true it is, that both the one and the other argue equally amiss.

They

They both depend upon common Places. The first upon the Power and Goodness of God ; upon certain and unquestionable Miracles, which they bring for proof of those that are called in question ; and upon the Blindness of *Libertines* ; who will believe nothing, but what is proportionable to their Reason. All this is very good in it's self ; but very weak to convince us of a particular Miracle. For God does not always act according to his Power ; nor is it an Argument, that a Miracle was wrought, because others of the same Nature have been wrought. And we may do well to believe, what is above our Reason, without being oblig'd to believe all that Men are pleas'd to obtrude upon us, as being above our Reason.

The latter makes use of common Places of another sort.

Truth, says one of 'em, and Falshood appear with Countenances alike ; the same Gate, the same steps we behold with the same Eyes. I have have seen the rise of several miracles in my Time. And tho they vanish'd in the Birth, yet we cannot but foresee the train they would have gathered, had they liv'd to their full Age. For it is but to find out the end of the Thread, and to cut it into as many peices as we please, and there is not a greater distance between nothing and the smallest thing in the World, then there is between this and the greatest. Now the first that were intoxicated with this beginning of Novelty, coming to spread their History, find by the opposition which they meet with, where the difficulty of Perswasion lodges, and make it their business to Fincuss

over that part of a false Piece. Particularly Error first causes publick Mistake, and afterwards publick mistake causes particular Error. Thus the whole Structure of the miracle by some pull'd down, by others upheld, and by addition enlarg'd at length grows up to a considerable Pile. So that the most remote Witness is better Instructed then he that lives close by, and the last that heard of it, better confirm'd then the first Publisher.

This Discourse is ingenious, and may be profitable to prevent us from being led away with every Idle Report. But it would be an Extravagance from hence to conclude generally that we ought to suspect whatever is said of Miracles. For certain it is, that what is here alledg'd relates only to those things which are taken up upon common Fame, without enquiring into the original cause of the Report. And we have no reason to be confident of what we know upon no better grounds.

But who so blind as not to see that we may make a common place opposite to this, and that at least upon as good a Foundation ?

For as there are some miracles that would deserve but little credit, should we enquire into their Original, so there are others that vanish out of the Memories of Men, or which find but little credit in their judgments, because they will not take the pains to inform themselves. Our understanding is not subject only to one sort of Distemper, but several, and those quite contrary. There is a sottish stupidity, that believes all things the least probable. But there is a conceited presumption that condemns
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for false, whatever surpasses the narrow limits of the understanding. Sometimes we hunt after trifles, and neglect things of greatest moment. False stories spread themselves every where, while true ones can hardly get liberty to creep abroad.

Few Persons have heard of the miracle that happen'd in our time at *Faramonstier*, in the Person of a Nun, so blind, that hardly the Balls of her Eyes were left in her Head, who recover'd her sight by touching the Reliques of *St. Fara*, as I am assur'd by the Testimony of a Person that saw her in both conditions.

St. Austin affirms, that many real miracles were wrought in his time, that were known but to few; and which, though most remarkable and wonderful, spread no farther then from one end of the Town to the other. Which induc'd him to write, and relate in his Sermons to the People, such as were most certain. And he observes in his *Twenty Second Book of the City of God*, that in the single City of *Hippo*, near Seventy Miracles were wrought within two years after the Building of a Chappel in Honour of *St. Stephen*, besides a great number of others, which he did not commit to writing, which however he testifies to be true upon his knowledge.

We therefore see that there is nothing more irrational, then to guide ourselves by common places, upon these occasions; whether it be in rejecting all Miracles, or embracing all. And therefore we must examine them by their particular Circumstances, and

by the credit and knowledge of the Reporters.

Piety does not oblige a Man of Sence to believe all the Miracles in the *Golden Legend* or the *Metaphrast* : In regard those Books are so full of Fables, that there is nothing to be credited upon their Authority : As Cardinal *Bellarmin* has made no scruple to confess of the last.

But I affirm, that every Man of Sence, bating his Piety, ought to acknowledge for true the Miracles which St. *Austin* recites in his Confessions and his Book *de Civitate Dei*, some of which he saw, and others of which he was inform'd by the Persons themselves, in whose sight they were wrought. As of the Blind Man cur'd at *Milan* before all the People, by touching the Relics of St. *Gervace* and *Protasius*, which he reports in his Confession, and of which he speaks in the 22d. Book *de Civitate Dei*, Chap. 8. *A certain Miracle was wrought at Milan, when we were there, when a Blind Man was restored to his Sight, which could not be unknown to Thousands ; For it is a large City, and there was then the Emperor ; and the thing was done before a vast Multitude of People, crowding to the Bodies of the Martyrs, St. Gervace and Protasius.*

Of a Woman cured in *Africa* by Flowers that had touch'd the Relics of St. *Stephen*, as he testifies in the same Book.

Of a Lady of Quality cur'd of a Canker by the sign of the Cross which she caus'd to be made upon the Sore, by one that was newly Baptised according to a Revelation which she had had.

Of a Child that dy'd Unbaptized, whose restoration to Life the Mother obtain'd by her Prayers to *St. Peter*, in the strength of her Faith, invoking him in these words, *Holy Martyr restore me my Son: Thou knowest, I ask his Life for no other reason, but because he should not be eternally separated from God.*

Now if these things may be suppos'd to have happen'd as they are related, there is no rational Person but must acknowledge these things to be the Finger of God. So that all their Incredulity could do, would be to doubt of the Testimony of *St. Austin*, and to believe him a falsifyer of the Truth, to gain a Veneration of the Christian Religion among the *Pagans*. Which is that which they have no colour to imagine.

First, Because it is not likely that a Person of his judgment would have told an untruth in things so Public, wherein he might have been convinc'd of falshood by infinite Numbers of Testimonies, which would have redounded to the Ignominy of the Christian Religion.

Secondly, Because there was never any Person more a profess'd Enemy of Falshood, then this Holy Man, especially in matters of Religion, having made it the work of entire Treatises, to prove that it is not only unlawful to tell a lie; but a thing so detestable, that it is not to be made use of, though for the Conversion of Men to the Christian Faith.

I have the more enlarg'd my self upon this remarkable Example, of the judgment that is to be made

made in the Truth of Actions, to serve as a Rule upon the like occasions, because we most commonly deviate in those things. For every one thinks, that it is sufficient for the Decision of those to make a common Place, which for the most part is only compos'd of Maxims, which not only are not Universally True, but not so much as probable, when they are joyn'd with the particular Circumstances of Actions, that fall under Examination. And therefore Circumstances are to be compar'd and consider'd together, not consider'd a part. For it often happens, that an Act which is not very probable in one Circumstance, ought to be esteem'd and taken for certain, according to other Circumstances : And on the other side, an Action which appears to us true, according to one Circumstance which is usually joyn'd with truth, ought to be deem'd false, according to other weakning Circumstances, as we shall make out in the following Chapter.

C H A P. XV.

*Other Remarks upon the same Subject, of
the Belief of Events.*

THERE is yet one other Remark of great Moment, to make upon the Belief of Events. Which is, that among those Circumstances which we ought to consider, that we may know whether
credit

credit be to be given to the Fact, or no ; there are some which we may call *common Circumstances*, because they frequently occur ; and are far oftner joyned to Truth than Falshood, and then if they be not Counter-ballanc'd by other particular Circumstances, that ruin the motives of belief drawn from common Circumstances, we have reason to believe those Events, if not to be certain, yet at least to be probable ; which probability is sufficient, when we are bound to pronounce our opinion in such cases. For as we ought to be satisfi'd with a moral assurance, in things not capable of Metaphysical certainty ; so when we cannot obtain a full moral assurance, the best we can do, when we are to resolve, is to embrace the most probable ; for it would be contrary to reason to embrace the least probable.

But if on the other side these common Circumstances, which would have induc'd us to believe a thing, be joyn'd with other particular Circumstances that ruin the motives of belief, drawn from common Circumstances, or be such as are rarely found without falshood, we are not then any longer to believe that Event. But either we remain in suspence, if the particular Circumstances enfeeble the weight of common Circumstances, or we believe the action to be false, if the Circumstances are such as are usually the marks of Falshood.

For example, it is a common Circumstance, for many Contracts to be sign'd by two publick Notaries ; that is, by two publick Persons, whose chiefest Interest it is to be just and true in their employ-
ments

ments, because not only their Conscience and Reputation, but their Lives and Estates lie at Stake. This consideration alone is sufficient, if we know no other particularities of the contract, to make us believe that the Contract is not Antidated. Not but that it might be so; but because it is certain, that of a Thousand Contracts, Nine Hundred Ninety Nine are not. So that it is infinitely more probable, that this contract is one of the Nine Hundred Ninety Nine, then the only Antidated Contract of a Thousand. So that if withal, the integrity of the Notary that sign'd it be known to me, I shall most certainly believe, that there is no foul play in the Writing.

But if to this common Circumstance of being sign'd by two Notaries, there are joyn'd other particular Circumstances, as that the Notaries are Persons of no Conscience or Reputation, so that they might be instrumental in falsifying the deed, yet shall not this make me conclude that the deed is antidated. But if besides all these, I can discover other proofs of the Antidate, either by Witnesses or convincing Arguments, as the Inability of the Person to lend Twenty Thousand Crowns, at a time when it shall be demonstrable that he had not a Hundred in Cash; I will then resolve to believe the contract to be falsify'd, and it were unreasonable for any Person to believe me to believe otherwise; and I should do ill, to suspect others, where I did not however see the same marks of Falshood, not to be false, since they might be as well Counterfeited as the other.

We

We may apply all this to several matters that cause frequent disputes among the Learned. We demand if such a Book were written by such an Author whose Name was always to it? And whether the Acts of a Council are True or Counterfeit.

Certain it is, that we ought to give Sentence for the Author, whose name has been long acknowledged and affixed to the Work; and for the Acts of a Council which we read every day; nor are we to believe the contrary, but upon very strong Reasons.

Therefore a most learned Person of this Age, being to prove, that the Epistle of *Cyprian* to Pope *Steven*, about *Martian* Bishop of *Arles*, was none of the Holy Martyrs, he could not convince the Learned, his Conjectures not seeming sufficient to deprive *St. Cyprian* of a Piece that had always carried his Name, and which has a perfect resemblance of Style, with the rest of his Works.

In vain also it is, that *Blondel* and *Salmasius*, not able to answer the Argument drawn from the Epistles of *Ignatius*, for the superiority of Bishops above Priests, in the Infancy of the Church, pretend those Epistles to be Counterfeit, though as they were Printed by *Vossius* and *Usher*, from the Ancient Manuscript in the *Florentine* Library: Inso-much that they have been refuted by those of their own party. For that confessing as they do, that we have the same Epistles which were cited by *Eusebius*,

sebius, *St. Jerom*, *Theodoret* and *Origen* himself, there is no likelihood that the Epistles of *Ignatius*, being collected by *Polycarp*, that the true Epistles should have disappear'd, and others be counterfeited in the time between *Polycarp* and *Origen*, or *Eusebius*. Besides, that those Epistles of *Ignatius*, which we have now, wear such a Character of the holiness and simplicity, so proper to the Apostolic Times, that they justify themselves against the vain accusations of being false and counterfeit.

Lastly, all the difficulties that Cardinal *Perron* proposes against the Epistles of the Council of *Afric*, to Pope *Celestine*, touching Appeals to the See, cannot prevail with us to believe otherwise now then before, but that those Epistles were really written by the Council.

But it happens sometimes that particular Circumstances carry more weight in Persuasion, than long Possession.

So that altho the Epistle of *St. Clement* to *St. James* Bishop of *Jerusalem* be translated by *Ruffinus*, near upon thirteen hundred Years ago, and that it is cited and own'd for *St. Clement* by a Council of *France*, above twelve Hundred years ago, yet we can hardly believe it otherwise than Counterfeit. In regard that *St. James* being Martyr'd before *St. Peter*, it is impossible that *St. Clement* should write after the Death of *St. Peter*, as the Epistle supposes.

Thus tho the Commentaries upon *St. Paul* are attributed to *St. Ambrose*, and cited under his Name by a great number of Authors; together with that
imper-

imperfect Work upon St. *Mathew*, under the name of *Chrysostom*. All Men however at this day agree that they belong to neither, but to other ancient Authors full of many Errors.

Lastly, the Acts of the two *Sinuessan* Councils under *Marcellin*, and two or three at *Rome*, under *Silvester*, and another at *Rome* under *Sixtus III.* might be sufficient to perswade us of the verity of those Councils, if they contain'd nothing but what were congruous to reason, and which might be proper for the times, wherein they are said to be Celebrated; but they contain so many absurdities, so disagreeable from those times, that there is great likelihood of their being false and counterfeit.

And these are the Remarks which may serve for these sorts of judgments. But we must not imagin^eem to be of such great use, as always to free us from the danger of being deceiv'd. All that they can do at most, is to guard us from the more gross and apparent Absurdities, and to enure us not to be carried astray by common Places, which containing something of general Truth, cease not however to be false upon many particular occasions, which is one of the chiefest sources of human Error.

CHAP. XVI.

Of the Judgments we ought to make of Future Accidents.

THese Rules that serve us to judge of Things past, may be apply'd to things to come. For as we probably judge a Thing to have come to pass, when the certain Circumstances which we know to be usually joyn'd to the Fact ; we may as probably believe that such a thing will happen, when the present Circumstances are such as are usually attended by such an Effect. Thus the Physicians judge of the good or bad success of Diseases ; Caprain of the future Events of War ; and that we judge in the world of the most part of contingent Affairs.

But as to these Accidents of which we are some part our selves, and which we may either promote or prevent by our care and fore-sight, in avoiding or exposing our selves to harm or danger ; it happens that most persons fall into many errors , so much the more grievous, by how much they seem to be guarded by reason ; because they only set before their Eyes, the Grandeur and Consequence of the advantage which they wish for, or the mischiefs that they fear, not considering the likelihood and probability that this advantage or inconvenience may happen or not happen.

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In like manner, when it is any great misfortune which they fear, as loss of Life or Estate, they think it prudence not to take any care to prevent it. Or if it be any great advantage which they expect, as the gain of a Hundred Thousand Crowns, they think they act wisely to endeavour the gaining of it, if the Venter cost but little, let the probability of success be never so small.

By such a Ratiocination as this it was, that a Princess hearing that some Persons had been overwhelm'd by the fall of a Roof, would never go into a House, till she had all the Roofs first view'd; and she was so fully perswaded, that she had a reason for so doing, that she accounted all other imprudent, that did not as she did.

'Tis also this appearance of Reason, that engages several Persons into inconvenient and excessive cautions for the preservation of their Health. This is that which renders others distrustful even in little Things; for that having been sometimes deceiv'd, they believe they shall be deceiv'd in all their other Business. This is that which enveagles so many People to Lotteries, to gain, cry they, Twenty Thousand Crowns for one Crown, is not that a very great advantage? And every one believes himself shall be that happy Person, upon whom this great Fortune shall shew it self: Never considering, that though the Lots promise Twenty Thousand for One, 'tis Thirty times more probable to every particular person, that he shall be a loser than a winner.

And

And this is the Defect of this Ratiocination ; for that we may judge what is fit to be done, to obtain the good and avoid the evil, we ought not only to consider the good and the evil in its self ; but also the probability whether it may happen or no ; and Geometrically to consider the Proportion which the things holds together ; which may be demonstrated by this Example.

Ten Men at play, stake every one a Crown, there is but one can win the whole Stake, all the rest are losers. So that every one has these two chances, either to loose One Crown or win Nine. Now if we should consider only the gain and loss in themselves, it might seem that all had an equal advantage : But we are to consider moreover, that if every one may win Nine Crowns, and can only lose one, it is also nine times more probable in respect of every one, that he shall lose his One, than win the Nine ; while every Man has nine Degrees of Probability to lose one Crown, and but one degree of Probability to gain Nine ; which equals the hopes and fears of Gain and Loss.

All Plays of this Nature, are as equitable as Plays can be, but all that are not under this Equality of Lots are unjust. And hence it is that it may be plainly made out, that there is an evident Injustice in all sorts of Lotteries ; for the Master of the Lottery usually claiming the tenth part of the whole Fund for his own share, the whole crowd of those that play is cheated in the same manner, as if a Man playing at a Game, wherein there were as much likeli-

likelihood of winning as loosing, should Play nine Pistols to one. Now if this be disadvantageous to the whole Crowd, it must be also the same to every particular Person, because the Probability of loosing, far more surpasses the Probability of gaining, then the advantage we hope for, the disadvantage of Loosing.

Sometimes there is a little likelihood in the success of a thing, that how advantageous soever it be, and how small soever the hazard of winning, it is better not to hazard. Thus it would be a foolish thing to play twenty *Sols* against ten Millions of *Livres*, or against a Kingdom, upon condition he should not winn, unless such an Infant taking out the Letters out of a Printers Case by accident, did also of a suddain Compose the first twenty Verses of *Virgil's Aeneiads*. For indeed there are few Moments scape us, wherein we do not run the Risco of loosing more, than a King that should stake his Kingdom to such a Condition.

These Reflexions seem of little value, and are so indeed if we stop here; but we may make use of 'em in matters of greater Importance; and the chiefest use we can make of 'em, is to render us more rational in our hopes and fears. For Example, there are some Persons that are in a Pannic dread when they hear it Thunder; which clatter and hurly-burly in the Sky, if it put 'em in mind of God and Death, 'tis well; but if only the fear of being Thunder-struck, causes this extraordinary apprehension,

prehension, then it will easily appear how little Reason they have. For of two Millions of Persons 'tis very much if one be kill'd in that manner ; and we may also aver , that there is no sort of violent Death happens so rarely. Since then the fear of mischief ought to be Proportionable to the greatness of the danger, and the Probability of the Event, as there is no sort of danger that so rarely befalls us as to be kill'd with Thunder , so have we the least reason to fear it ; since that fear will no way avail us to avoid it.

Hence Arguments may be produc'd not only to undeceive such People as are so over morosely and unseasonably cautious in the Preservation of their Health and Lives , by shewing 'em that those Precautions are much more mischievous than the danger so remote from the accident which they fear ; but also to disabuse another sort that always argue thus in other affairs, there is danger in this Business, therefore it is evil ; In regard we are not to judge of those things , either by the danger or the advantage , but by their proportion one with another.

It is the Nature of things Finite to be exceeded, how bulky soever they be by the least of things , if multiplied often enough ; or if the little things are far more Superiour to the great ones in probability of Event , than they are inferior to 'em in bigness.

For

For an Atome may exceed a Mountain if it be sufficiently multiplied, or if this great Good we wish for is so difficult to be obtain'd, that it surpasses the little one more in Magnitude, than the little one surpasses the greater in facility of being obtain'd. The same is to be said of those mischiefs which we fear; that is, that the least Evil may be more considerable than the greatest Evil, which is not Infinite, if it surpass it according to this proposition.

There are nothing but Infinite things that can be equall'd by any temporal advantage, and therefore they are never to be put in the Ballance with any of the things of this World. And therefore the least degree of Facility for a Man to save himself is worth all the felicities of this World join'd together. And the least danger of losing it is more considerable than all temporal mischiefs, if only look'd upon as Misfortunes.

And this may be sufficient, for all rational persons to draw from what has been said, this Conclusion, with which we will end our Logic. *That the greatest of all Imprudence, and highest of all Madneses is this, to spend our Lives and our Time in any thing else than in what may be serviceable to acquire us a Life that never shall have an end.* Since the Good and Evil of this Life is nothing, if compared to the felicities and sufferings of the other; and the danger of falling into the one is as great as the difficulty of acquiring the other.

They

They who draw this Conclusion, and follow it in the Conduct of their Lives, are Prudent and Wise, let 'em be never so unlearned in Arguments concerning the Sciences. Whereas they who neglect it, tho' never so Learned in other things, are called in Scripture Fools, Madmen, and make but an ill use of Logic, Reason; or their Lives.

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